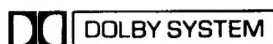


Service Manual

Cassette Deck

RS-M02

(Black Face)
(Silver Face)Direct-Drive Concise Cassette Deck with
Metal Tape Recording Capability

This is the Service Manual for the following areas.

- For All European areas except United Kingdom.
- ▢ For United Kingdom.
- ▣ For Asia, Latin America, Middle East and Africa areas.
- ▤ For Australia.

RS-M85 MECHANISM SERIES

Specifications

| | | | |
|----------------------------------|---|---------------------|--|
| Track system: | 4-track 2-channel stereo recording and playback | Outputs: | LINE; output level 650 mV, load impedance 22 k Ω over |
| Tape speed: | 4.8 cm/s | | HEADPHONE; output level 75 mV, load impedance 8 Ω |
| Wow and flutter: | 0.035% (WRMS), $\pm 0.10\%$ (DIN) | Bias frequency: | 85 kHz |
| Frequency response: | Metal tape; 20–20,000 Hz 30–18,000 Hz (DIN) 30–17,000 Hz ± 3 dB (0 VU) 40–13,000 Hz ± 3 dB | Motors: | 2-motor system Capstan; FG servo control direct-drive motor Reel table; 1-DC coreless motor |
| | CrO ₂ /Fe-Cr tape; 20–18,000 Hz 30–18,000 Hz (DIN) 30–16,000 Hz ± 3 dB | Heads: | 2-head system 1-SX (Sendust Extra) head for record/playback 1-Sendust/ferrite double-gap head for erasure |
| | Normal tape; 20–18,000 Hz 30–16,000 Hz (DIN) 30–14,000 Hz ± 3 dB | Power requirements: | AC; 110/125/220/240 V, 50-60 Hz Preset power voltage; 240 V for United Kingdom and Australia 220 V for Europe |
| Signal-to-noise ratio: | Dolby* NR in; 68 dB (above 5 kHz) Dolby NR out; 58 dB (signal level = max. recording level, Fe-Cr/CrO ₂ type tape) | Power consumption: | 24 W |
| Fast forward and rewind time: | Approx. 80 seconds with C-60 cassette tape | Dimensions: | 29.7 cm (W) \times 9.7 cm (H) \times 22.9 cm (D) |
| Inputs: | MIC; sensitivity 0.25 mV, applicable microphone impedance 400 Ω –10 k Ω LINE; sensitivity 60 mV, input impedance 47 k Ω | Weight: | 5.5 kg |

Specifications are subject to change without notice.

* 'Dolby' and the double-D symbol are trademarks of Dolby Laboratories.

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

LOCATION OF CONTROLS AND COMPONENTS

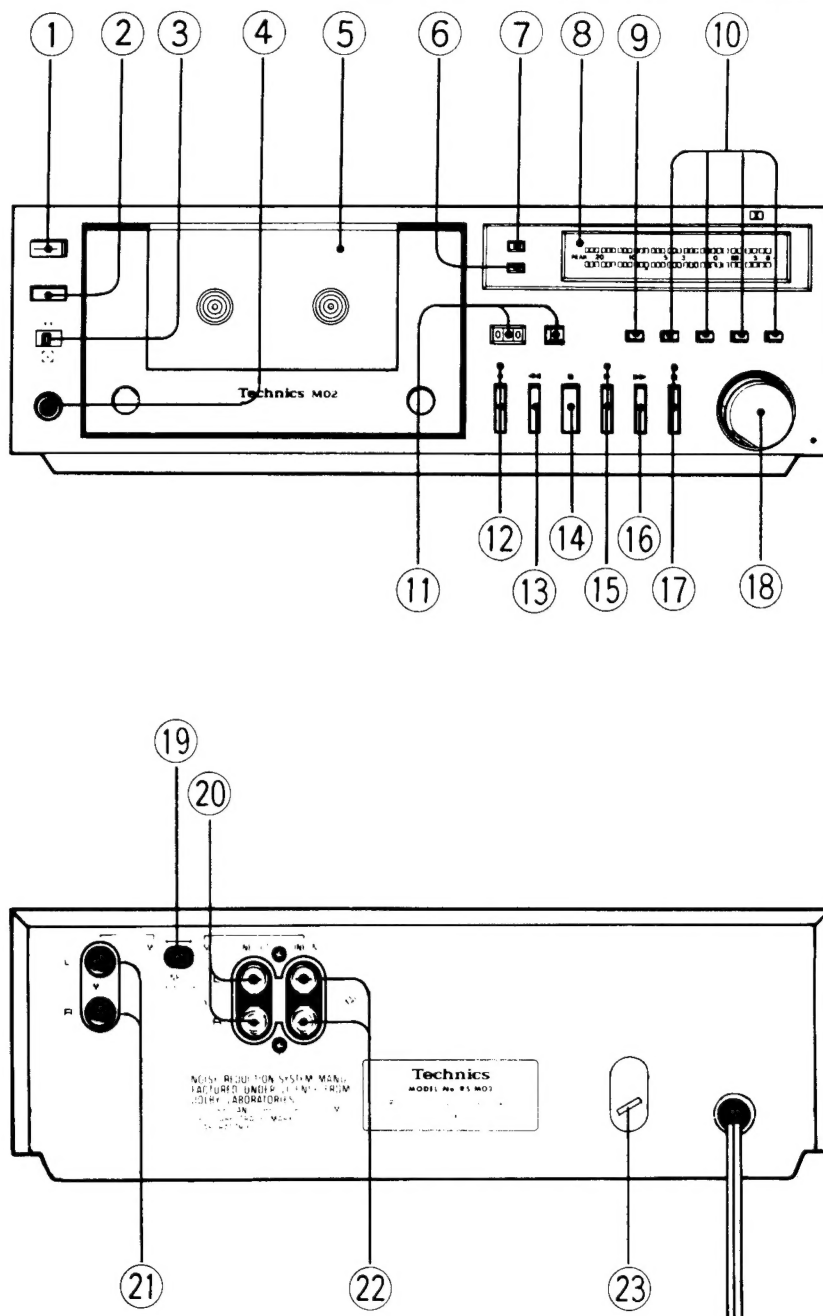


Fig. 1

- | | |
|---|--|
| ① Eject button (eject) | ⑬ Rewind button (rew ◀◀) |
| ② Power switch (power) | ⑭ Stop button (stop ■) |
| ③ Timer start switch (timer rec) | ⑮ Play button with LED (play ▶) |
| ④ Headphones jack (phones) | ⑯ Fast forward button (ff▶▶) |
| ⑤ Cassette holder | ⑰ Pause button with LED (pause) |
| ⑥ Microphone indication lamp (mic) | ⑱ Input selector (INPUT SELECTOR MIC/LINE) |
| ⑦ Dolby noise-reduction indication lamp (Dolby NR) | ⑲ Line output jacks (LINE OUT) |
| ⑧ FL (fluorescent level) meters | ⑳ Microphone jacks (MIC) |
| ⑨ Dolby noise-reduction switch (Dolby NR) | ㉑ Line input jacks (LINE IN) |
| ⑩ Tape selectors (tape select-normal/Fe-Cr/CrO ₂ /Metal) | ㉒ Voltage selector (VOLTAGE SELECTOR) |
| ⑪ Tape counter and Reset button (counter) | |
| ⑫ Record button/Record-muting button with LED (rec rec mute ○) | |

DISASSEMBLY INSTRUCTIONS

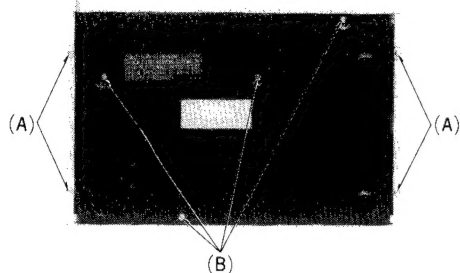


Fig. 2

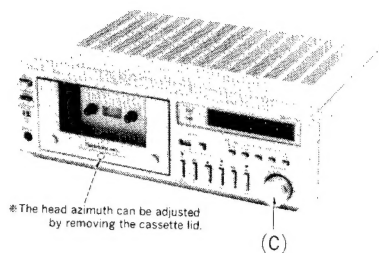


Fig. 3

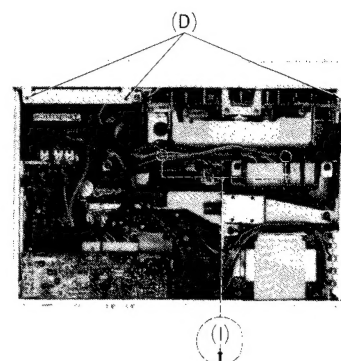


Fig. 4

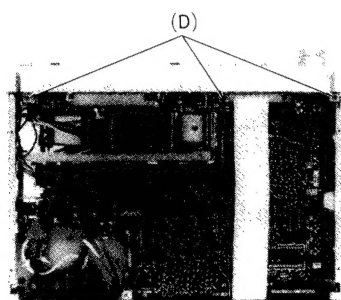


Fig. 5

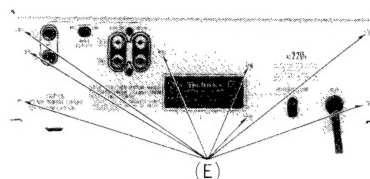


Fig. 6

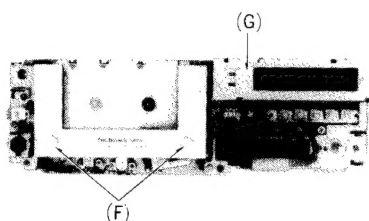


Fig. 7

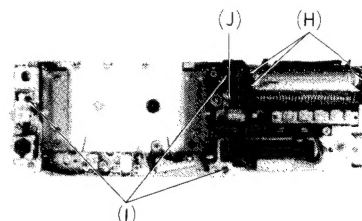


Fig. 8

| Procedure | To remove — | Remove — | Shown in fig. — |
|-----------|----------------|--|-----------------|
| 1 | Case cover | • 4 screws (A) | 2 |
| 2 | Bottom cover | • 4 screws (B) | 2 |
| 3 | Front panel | • Control knob (C) • 6 red screws (D) | 3 4, 5 |
| 3 | Back cover | • 8 screws (E) | 6 |
| 3 | Cassette lid | • 2 cassette lid holders (F) | 7 |
| 6 | FL level meter | • Meter cover (G) • 3 meter holders (H) | 7 8 |
| 6 | Mechanism | • 5 red screws (I) • Counter belt (J) | 4, 8 8 |

MAIN CONTROL CIRCUIT OPERATION

Rewind mode

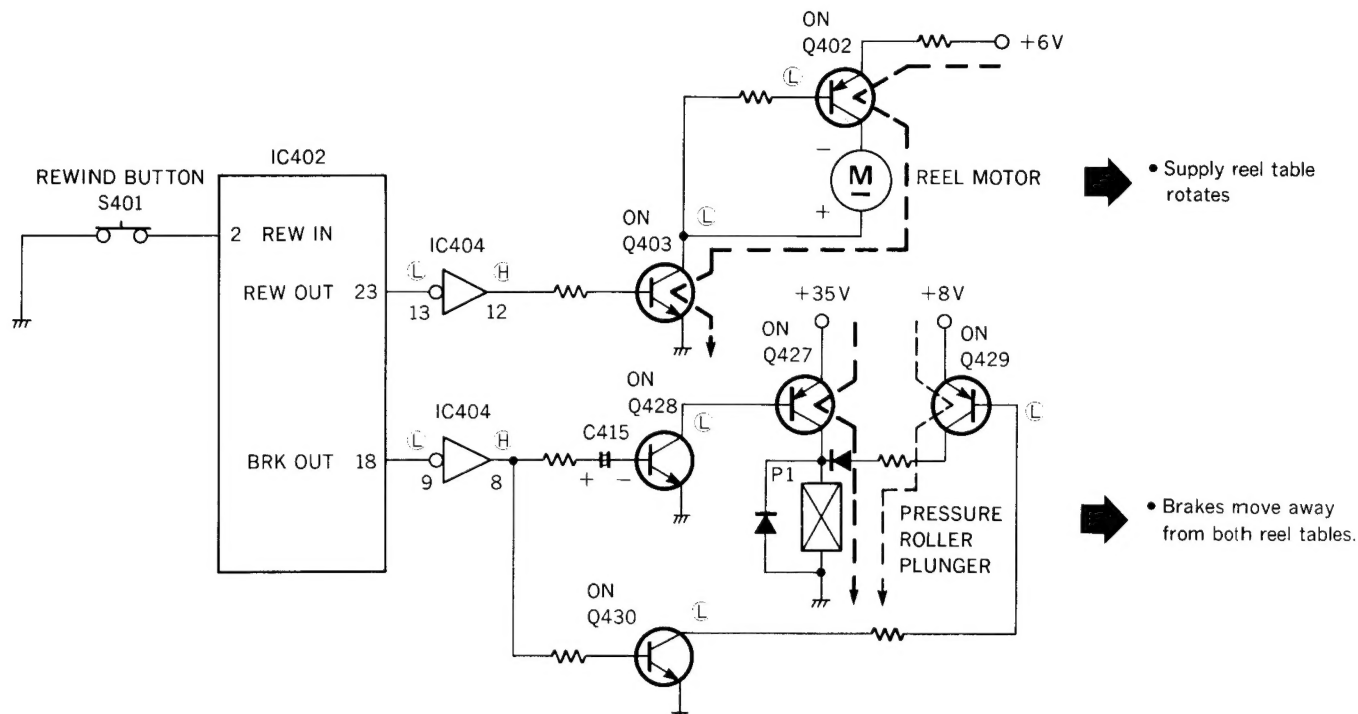


Fig. 9

Fast forward mode

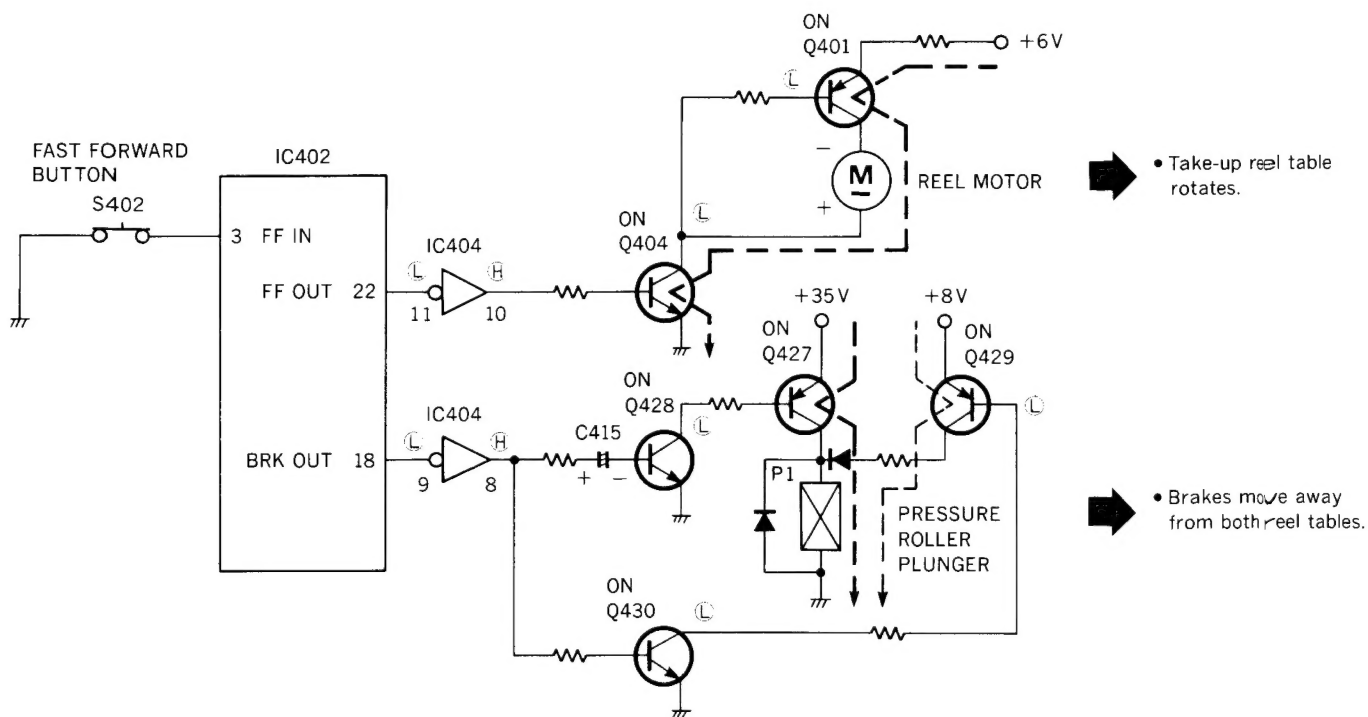


Fig. 10

Record mode

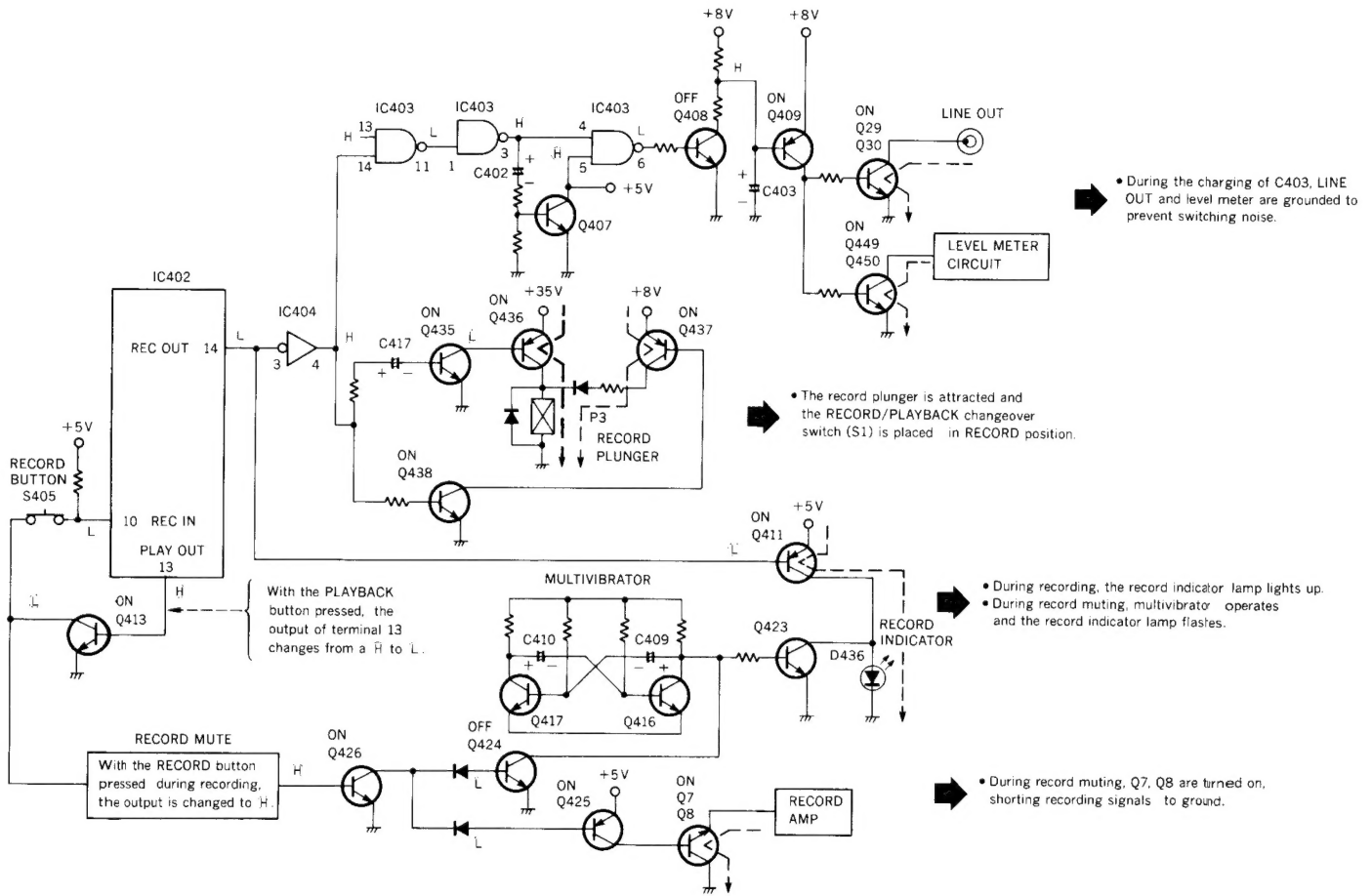


Fig. 12

Pause mode

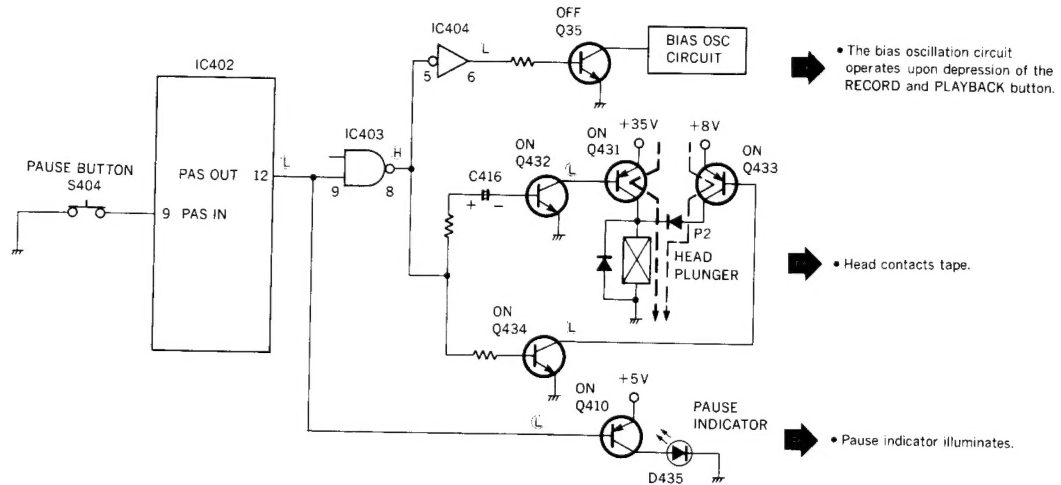


Fig. 13

Timer recording/playback

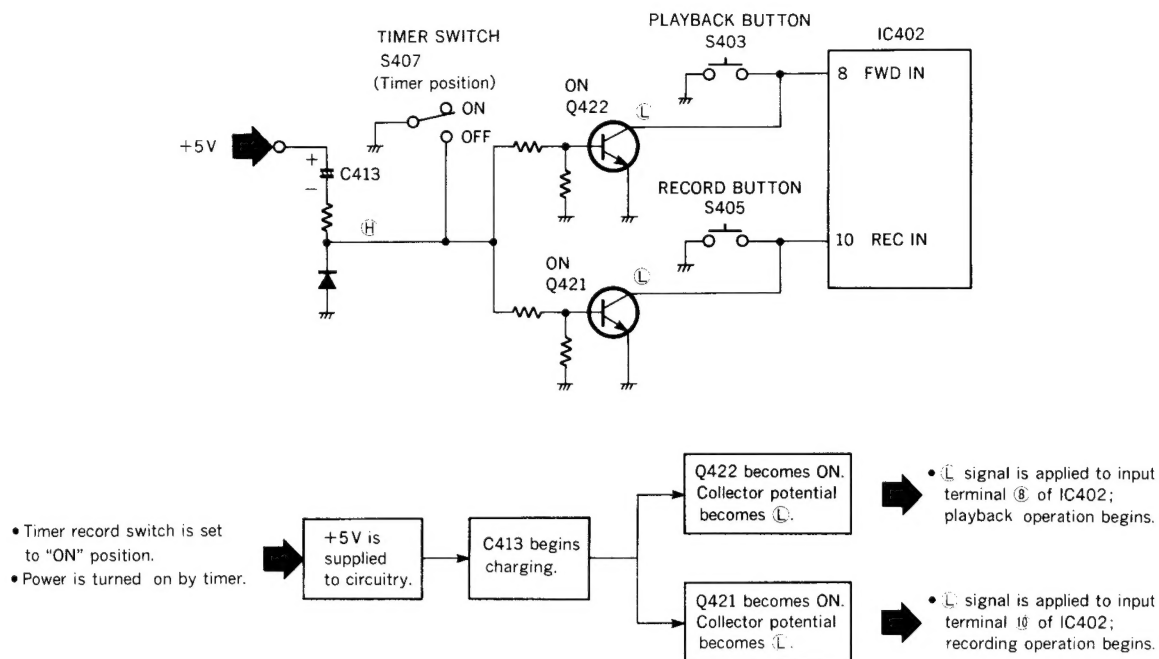


Fig. 14

Full automatic stop

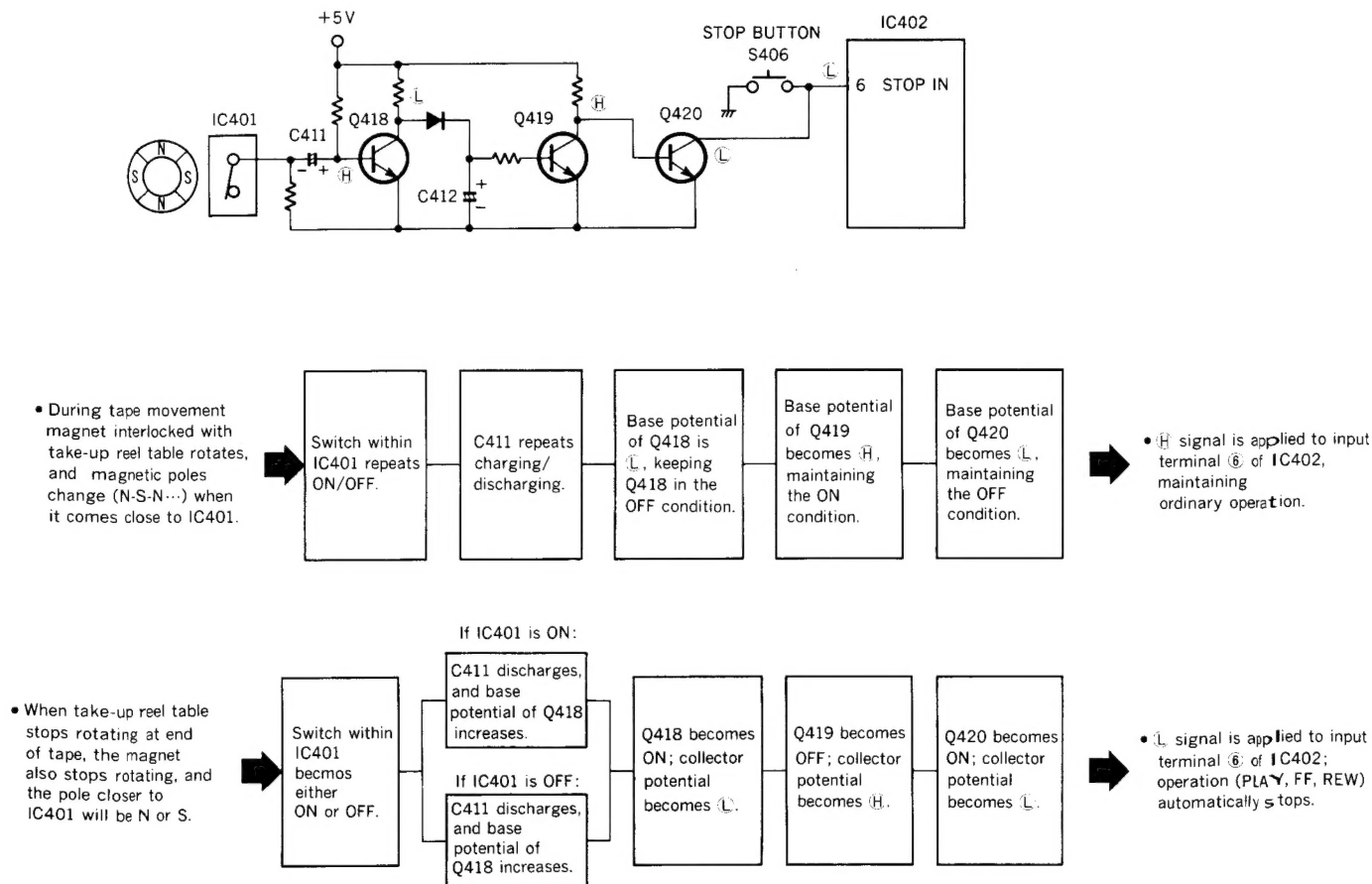


Fig. 15

CIRCUIT BOARDS AND ADJUSTMENT PARTS LOCATION

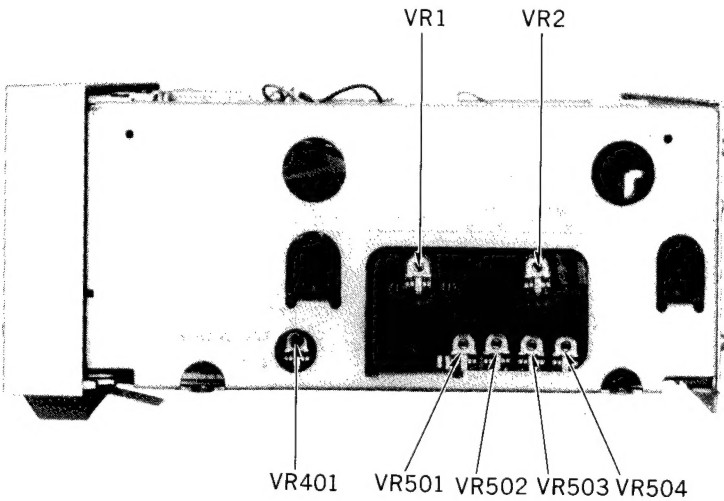
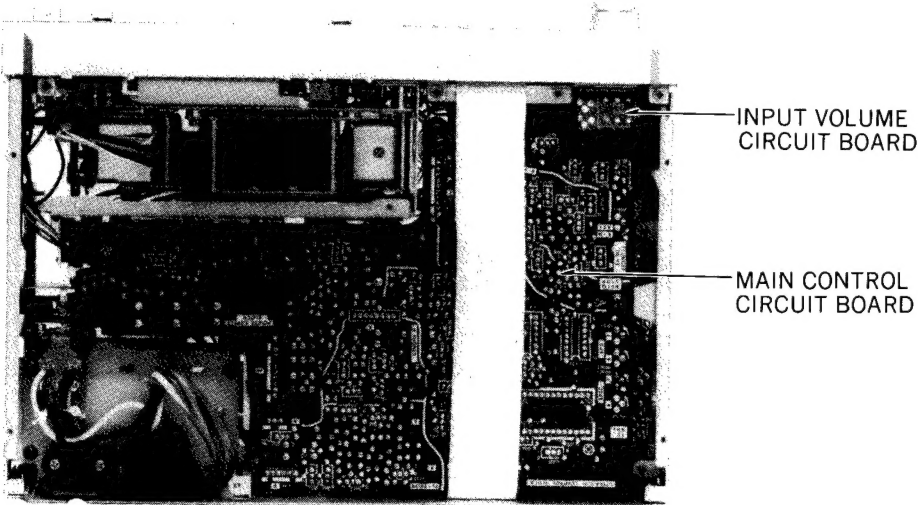
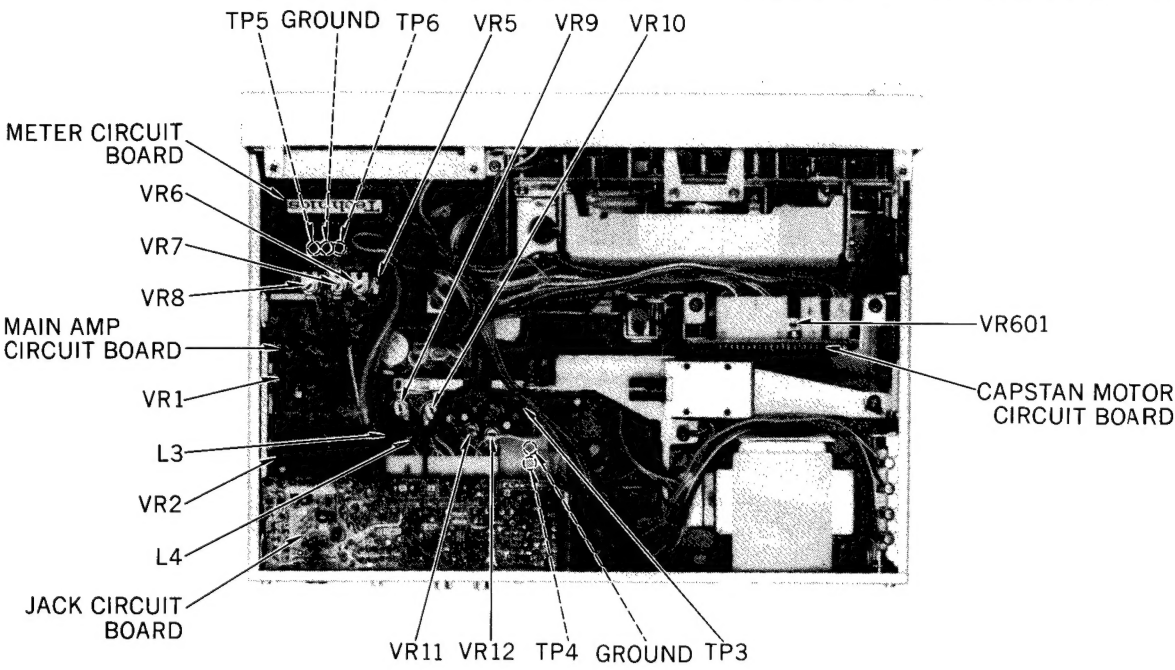
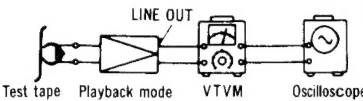
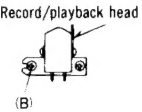
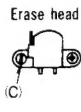


Fig. 16

MEASUREMENT AND ADJUSTMENT METHODS

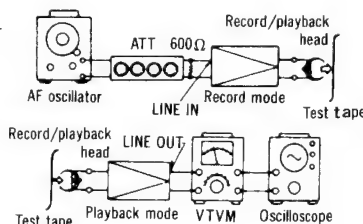


NOTE: Set lever switches and controls in the following positions, unless otherwise specified.

- Make sure heads are clean.
- Make sure capstan and pressure roller are clean.
- Judgeable room temperature: $20 \pm 5^{\circ}\text{C}$ ($68 \pm 9^{\circ}\text{F}$)
- Dolby NR switch: OUT
- Tape selector: Normal
- Input selector: Line in
- Input level control: Maximum

| ITEM | MEASUREMENT & ADJUSTMENT |
|--|---|
| A Takeup tension Condition: * Playback mode Equipment: * Cassette torque meter (QZZSRKCT) | <ol style="list-style-type: none"> 1. Mount cassette torque meter on UNIT. 2. Place UNIT into playback mode and read takeup torque. 3. Measure several times and determine the mean value. <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> Standard value: $35 \pm 5 \text{ gr-cm}$ </div> <ol style="list-style-type: none"> 4. If measured value is not in standard, adjust VR401. |
| B Head azimuth adjustment Condition: * Playback mode Equipment: * VTVM * Oscilloscope * Test tape (azimuth) ... QZZCFM * Tape path viewer ... QZZCRD | <p>Record/playback head adjustment</p> <ol style="list-style-type: none"> 1. Test equipment connection is shown in fig. 17. 2. Playback azimuth tape (QZZCFM 8kHz). 3. Adjust record/playback head angle adjustment screw (B) in fig. 18 so that output level at LINE OUT becomes maximum. 4. Measure both channels, and adjust levels for equal output. 5. After adjustment lock head adjustment screw with lacquer. <p>Erase head adjustment</p> <ol style="list-style-type: none"> 1. Test equipment connection is the same above but use the tape path viewer (QZZCRD) instead of test tape (QZZCFM). 2. Playback this tape. 3. Adjust screw (C) shown in fig. 19 so that the tape may not get curled or malformed by tape guide of the erase head. 4. After adjustment, lock head adjust screw with lacquer. <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Fig. 17</p> </div> <div style="text-align: center;">  <p>Fig. 18</p> </div> <div style="text-align: center;">  <p>Fig. 19</p> </div> </div> |
| C Tape speed Condition: * Playback mode Equipment: * Digital electronic counter * Test tape ... QZZCWAT | <p>Tape speed accuracy</p> <ol style="list-style-type: none"> 1. Test equipment connection is shown in fig. 20. 2. Playback test tape (QZZCWAT 3,000Hz), and supply playback signal to frequency counter. 3. Measure this frequency. 4. On the basis of 3,000Hz, determine value by following formula: $\text{Tape speed accuracy} = \frac{f - 3,000}{3,000} \times 100 (\%)$ where, f = measured value 5. Take measurement at middle section of tape. <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> Standard value: $\pm 0.5\%$ </div> <ol style="list-style-type: none"> 6. If measured value is not within standard, adjust VR601. <p>Tape speed fluctuation</p> <p>Make measurements in same manner as above (beginning, middle and end of tape), and determine the difference between maximum and minimum values and calculate as follows:</p> $\text{Tape speed fluctuation} = \frac{f_1 - f_2}{3,000} \times 100 (\%)$ <p style="text-align: center;">f_1 = maximum value, f_2 = minimum value</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> Standard value: Less than 0.3% </div> |

| ITEM | MEASUREMENT & ADJUSTMENT |
|--|--|
| <p>D Playback frequency response</p> <p>Condition:</p> <ul style="list-style-type: none"> * Playback mode <p>Equipment:</p> <ul style="list-style-type: none"> * VTVM * Oscilloscope * Test tape ... QZZCFM | <ol style="list-style-type: none"> 1. Test equipment connection is as same as "Head azimuth adjustment" but use the test tape (QZZCFM) instead of head azimuth tape (See fig. 17). 2. Place UNIT into playback mode. 3. Playback the frequency response test tape (QZZCFM). 4. Measure output level at 12.5 kHz, 8 kHz, 4 kHz, 1 kHz, 250 Hz, 125 Hz and 63 Hz, and compare each output level with the standard frequency 315 Hz, at LINE OUT. 5. Make measurement for both channels. 6. Make sure that the measured value is within the range specified in the frequency response chart. <div data-bbox="953 358 1434 582"> <p>Playback frequency response chart</p> </div> <p style="text-align: center;">Fig. 21</p> |
| <p>E Playback gain</p> <p>Condition:</p> <ul style="list-style-type: none"> * Playback mode <p>Equipment:</p> <ul style="list-style-type: none"> * VTVM * Oscilloscope * Test tape ... QZZCFM | <ol style="list-style-type: none"> 1. Test equipment connection is shown in fig. 17. 2. Playback standard recording level portion on test tape (QZZCFM 315Hz), and using VTVM measure the output level at LINE OUT jack. 3. Make measurement for both channels. <div data-bbox="545 851 906 896" style="border: 1px solid black; padding: 5px; text-align: center;"> Standard value: 0.65 ± 0.10 V </div> <p>Adjustment</p> <ol style="list-style-type: none"> 1. If measured value is not standard, adjust VR11 (L-CH), VR12 (R-CH) (See fig. 16). 2. After adjustment, check "Playback frequency response" again. |
| <p>F Bias leak</p> <p>Condition:</p> <ul style="list-style-type: none"> * Record mode * Input level control ... MAX <p>Equipment:</p> <ul style="list-style-type: none"> * VTVM * Oscilloscope | <ol style="list-style-type: none"> 1. Test equipment connection is shown in fig. 22 (See AMP circuit board on page 10). 2. Place UNIT into record mode. 3. Adjust trap coils L3 (L-CH), L4 (R-CH), so that measured value becomes minimum (See fig. 16). 4. Make adjustment for both channels. <div data-bbox="1128 1041 1458 1220"> </div> <p style="text-align: center;">Fig. 22</p> |
| <p>G Erase current</p> <p>Condition:</p> <ul style="list-style-type: none"> * Record mode <p>Equipment:</p> <ul style="list-style-type: none"> * VTVM * Oscilloscope | <ol style="list-style-type: none"> 1. Test equipment connection is shown in fig. 23. 2. Place UNIT into record mode and measure voltage at test point 7. 3. Determine erase current with the following formula: <div data-bbox="588 1366 1074 1433" style="text-align: center;"> $\text{Erase current (A)} = \frac{\text{Voltage across both ends of R274}}{1 (\Omega)}$ </div> <div data-bbox="545 1444 1097 1489" style="border: 1px solid black; padding: 5px; text-align: center;"> Standard value: 95 ± 5 mA (Tape selector ... Metal) </div> <ol style="list-style-type: none"> 4. If measured value is not within standard, adjust VR8. <div data-bbox="1121 1310 1434 1456"> </div> <p style="text-align: center;">Fig. 23</p> |
| <p>H Bias current</p> <p>Condition:</p> <ul style="list-style-type: none"> * Record mode * Bias adjustment control ... Center <p>Equipment:</p> <ul style="list-style-type: none"> * VTVM * Oscilloscope | <p>A. Adjustment for metal position</p> <ol style="list-style-type: none"> 1. Test equipment connection is shown in fig. 24. 2. Place the test tape (QZZCRZ) in the cassette holder. 3. Press the record and pause buttons. 4. Set the tape selector to metal position. 5. Supply 1 kHz signal from AF oscillator, through ATT to LINE IN. 6. Adjust ATT so that input level is -20 dB below standard recording level. 7. At this time, LINE OUT level indicates 0.065 V. 8. Record 1 kHz and 15 kHz signals. 9. Playback and express in dB the difference between output levels of 15 kHz and 1 kHz. 10. Make sure output level of 15 kHz is not within -1 ± 3 dB compared with output level of 1 kHz. 11. If measured value is not within -1 ± 3 dB, adjust VR9 (L-CH only). <div data-bbox="1121 1579 1458 1825"> </div> <p style="text-align: center;">Fig. 24</p> <div data-bbox="1136 1848 1450 1993"> </div> <p style="text-align: center;">Fig. 25</p> |



| ITEM | MEASUREMENT & ADJUSTMENT |
|---|---|
| | <p>B. Adjustment for normal position</p> <ol style="list-style-type: none"> Set the tape selector to normal position (test tape QZZCRA). Change test tape to normal tape (QZZCRA). Press the record and playback buttons. Record 1 kHz and 13 kHz signals. Playback and express in dB the difference between output levels of 13 kHz and 1 kHz. Make sure output level of 13 kHz is not within 0 ± 3 dB compared with output level of 1 kHz. If measured value is not within 0 ± 3 dB, adjust VR5 (L-CH, R-CH), VR10 (R-CH). <p>C. Adjustment for Fe-Cr and CrO₂ positions</p> <ol style="list-style-type: none"> Set the tape selector to Fe-Cr position. Change test tape to Fe-Cr tape (QZZCRY). Press the record and playback buttons. Record 1 kHz and 14 kHz signals. Playback and express in dB the difference between output levels of 14 kHz and 1 kHz. Make sure output level of 14 kHz is not within 0 ± 3 dB, compared with output level of 1 kHz. If measured value is not within 0 ± 3 dB, adjust VR6. Set the tape selector to CrO₂ position. Change test tape to CrO₂ tape (QZZCRX). Make the same measurements described in steps 21 to 24 above. If measured value is not within 0 ± 3 dB, adjust VR7. <p>Measurement</p> <ol style="list-style-type: none"> Test equipment connection is shown in fig. 25. Place UNIT into record mode. Read voltage on VTVM and calculate bias current by following formula: $\text{Bias current (A)} = \frac{\text{Value read on VTVM (V)}}{10 (\Omega)}$ <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Standard value: around 560μA (Metal position), around 300μA (Normal position), around 320μA (Fe-Cr position), around 415μA (CrO₂ position)</p> </div> |
| <p>① Overall gain</p> <p>Condition:</p> <ul style="list-style-type: none"> * Record/playback mode * Input level control ... MAX * Standard input level: MIC -72 ± 3 dB LINE IN ... -24 ± 3 dB <p>Equipment:</p> <ul style="list-style-type: none"> * VTVM * ATT * Test tape (reference blank tape) * AF oscillator * Oscilloscope ... QZZCRA for Normal ... QZZCRX for CrO₂ ... QZZCRY for Fe-Cr ... QZZCRZ for Metal | <ol style="list-style-type: none"> Test equipment connection is shown in fig. 26. Place UNIT into record mode. Supply 1 kHz signal (-24 dB) from AF oscillator, through ATT to LINE IN. Adjust ATT until monitor level at LINE OUT becomes 0.65 V. Using test tape, make recording. Playback recorded tape, and measure the output level at LINE OUT on VTVM. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Standard value: 0.65 ± 0.10 V</p> </div> <p>7. If measured value is not within standard, adjust the following VR. VR1 (L-CH), VR2 (R-CH)</p>  <p style="text-align: center;">Fig. 26</p> |
| <p>② Fluorescent meter</p> <p>Condition:</p> <ul style="list-style-type: none"> * Record mode * Input level control ... MAX * Tape selectors ... Normal position <p>Equipment:</p> <ul style="list-style-type: none"> * VTVM * AF oscillator * ATT | <ol style="list-style-type: none"> Test equipment connection is shown in fig. 27. Supply 1 kHz signal (-24 dB) to the LINE IN jack, then press the record button. Adjust the ATT so that the output level at LINE OUT jack becomes 0.65 V (= standard input level). Adjustment at "0 dB": <ol style="list-style-type: none"> Adjust VR501 (L-CH) and VR502 (R-CH) so that the Fluorescent meters show an illuminated indication up to "0 dB" when the input signal level is 0.9 dB higher than the standard input level.  <p style="text-align: center;">Fig. 27</p>  <p style="text-align: center;">Fig. 28</p> |

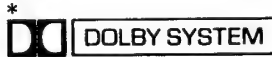
| ITEM | MEASUREMENT & ADJUSTMENT |
|--|--|
| | <p>B. Then confirm that the Fluorescent meters show an illuminated indication up to "+1 dB" when the input signal level is 1 dB higher than the standard input level.</p> <p>5. Adjustment at "-20 dB":</p> <p>A. Adjust VR503 (L-CH) and VR504 (R-CH) so that the Fluorescent meters show an illuminated indication up to "-20 dB" when the input signal level is 15.1 dB lower than the standard input level.</p> <p>B. Then confirm that the Fluorescent meters show an illuminated indication up to "-15 dB" when the input signal level is 15 dB lower than the standard input level.</p> <p>6. Repeat twice between steps 2 and 5 above.</p> |
| <p>K Overall frequency response</p> <p>Condition:</p> <ul style="list-style-type: none"> * Record/playback mode * Input level control ... MAX <p>Equipment:</p> <ul style="list-style-type: none"> * VTVM * AF oscillator * ATT * Test tape (reference blank tape) <ul style="list-style-type: none"> ... QZZCRA for Normal ... QZZCRX for CrO₂ ... QZZCRY for Fe-Cr ... QZZCRZ for Metal | <p>Note:</p> <p>Before measuring and adjusting, make sure of the playback frequency response (For the method of measurement, please refer to the playback frequency response).</p> <ol style="list-style-type: none"> 1. Test equipment connection is shown in fig. 26. 2. Load reference blank test tape and place UNIT into record mode. 3. Supply 1 kHz signal from AF oscillator through ATT to LINE IN. 4. Adjust ATT so that input level is -20 dB below standard recording level (standard recording level = 0 VU). 5. At this time, LINE OUT level indicates 0.065 V. 6. Record each frequency 30 Hz, 70 Hz, 100 Hz, 200 Hz, 700 Hz, 1 kHz, 4 kHz, 8 kHz, 10 kHz, 12 kHz, and 13 kHz (14 kHz for CrO₂ and Fe-Cr, 15 kHz for Metal). 7. Playback and express in dB the difference between playback output level of each frequency based on playback output level of 1 kHz. 8. Make sure that the measured value is within the range specified in the overall frequency response chart. <p>Overall frequency response chart (Normal)</p> <p>Fig. 29</p> <p>Overall frequency response chart (Fe-Cr, CrO₂)</p> <p>Fig. 30</p> <p>Overall frequency response chart (Metal)</p> <p>Fig. 31</p> <p>Adjustment</p> <ol style="list-style-type: none"> 1. When the frequency response between the middle and high frequency range becomes higher than the standard value, as shown by the solid line in fig. 32 increase, refer to bias current adjustment. 2. When it becomes lower, as shown by dotted line, refer to bias current adjustment. <p>Note:</p> <ol style="list-style-type: none"> 1. For adjustment when the bias current is lower than the standard value use the procedure indicated in adjustment 2, because reducing the bias current beyond this point may worsen the distortion factor. 2. For the method of bias current measurement, refer to "Bias current adjustment" on page 9. <p>Fig. 32</p> |

Service Manual

Cassette Deck

RS-M02

(Black Face)
(Silver Face)
Supplement-2

 Direct-Drive Concise Cassette Deck with
Metal Tape Recording Capability


Please use this manual together with the service manual for model No. RS-M02 (original) order No. ARD-7908072C and Supplement-1 order No. ARD-8006066S.

This is the Service Manual for the following areas.

- For all European areas except United Kingdom.
- For United Kingdom.
- For Asia, Latin America, Middle East and Africa areas.
- For Australia.

PARTS COMPARISON TABLE :

Please revise the original parts list in the Service Manual to conform to the changes shown herein.

If new parts number are shown, be sure to use them when ordering parts.

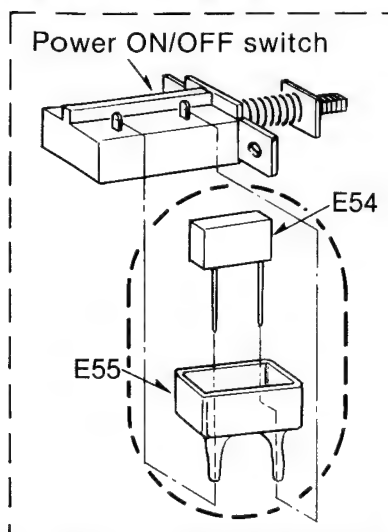
Important safety notice.

Components identified by Δ mark have special characteristics important for safety.

When replacing any of these components, use only manufacturer's specified parts.

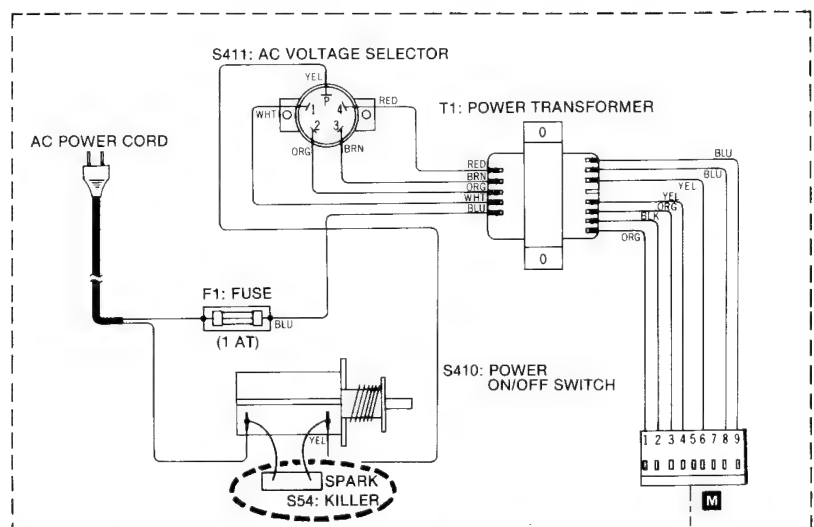
| Ref. No. | Parts Name & Description | Parts Number | | Remarks |
|---|-----------------------------|--------------|--------------|---------|
| | | Former Type | New Type | |
| M28 | Shield Plate | QTS1451 | QTS1491 | |
| VR13, 14 | Variable Resistor | EWKNXAF22A54 | EWJSEAF22A54 | |
| E31 | Shield Plate (for T1) | QTS1488 | QTS1503 | |
| E54 | Δ Spark Killer | | QCR008T | Added |
| ※For Asia, Latin America, Middle East and Africa areas. | | | | |
| E55 | Δ Spark Killer Cover | | QTW1118 | Added |
| ※For Asia, Latin America, Middle East and Africa areas. | | | | |

ELECTRICAL PARTS LOCATION (ADDITION)



* For Asia, Latin America, Middle East and Africa areas.

WIRING CONNECTION DIAGRAM



* For Asia, Latin America, Middle East and Africa areas.

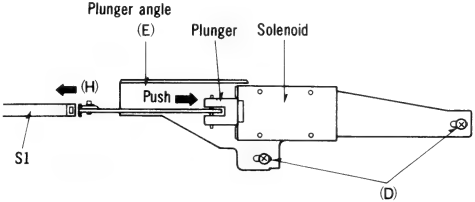
* 'Dolby' and the double-D symbol are trademarks of Dolby Laboratories.

Technics

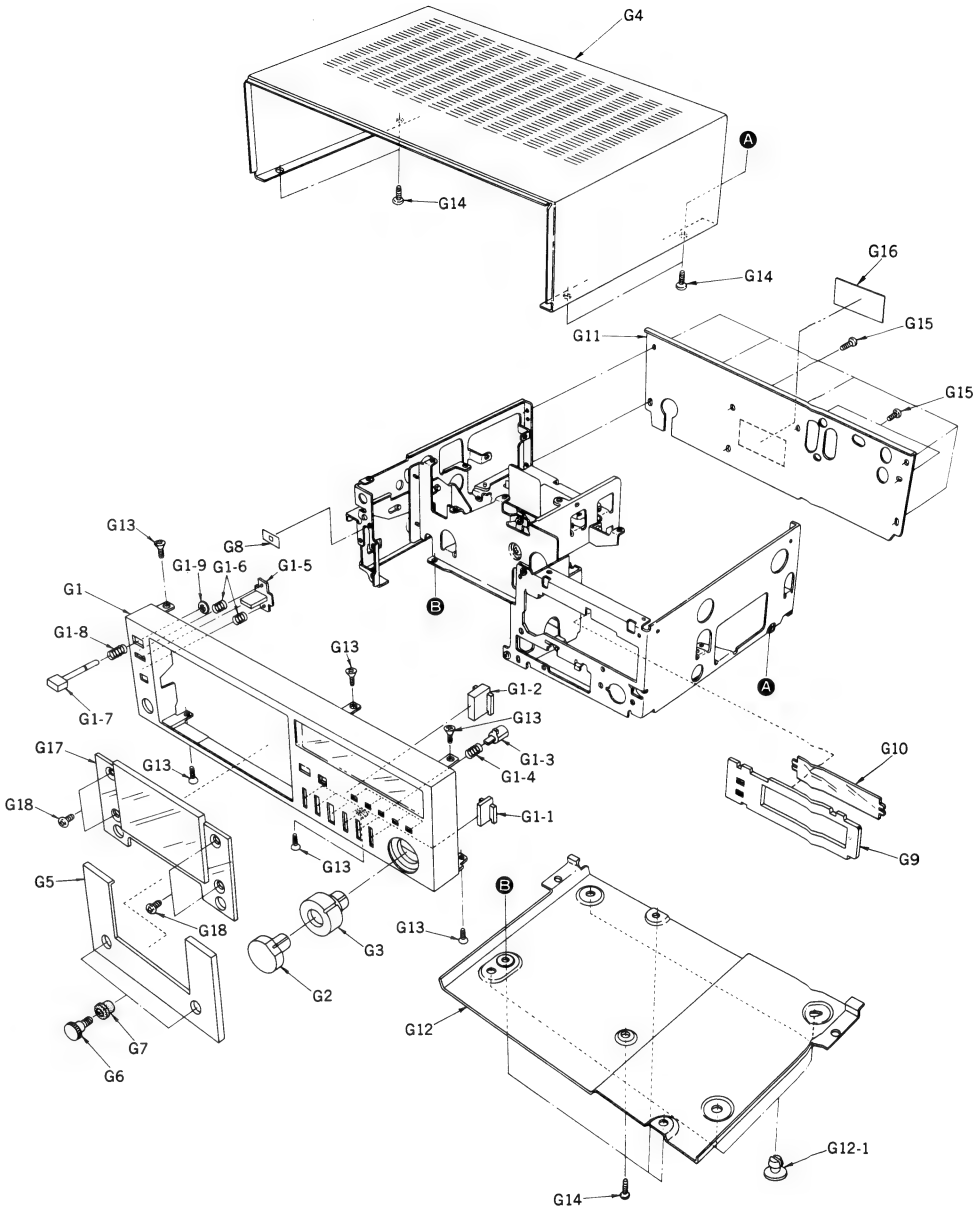
Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

(ARD, H.M) Printed in Japan.

CABINET PARTS

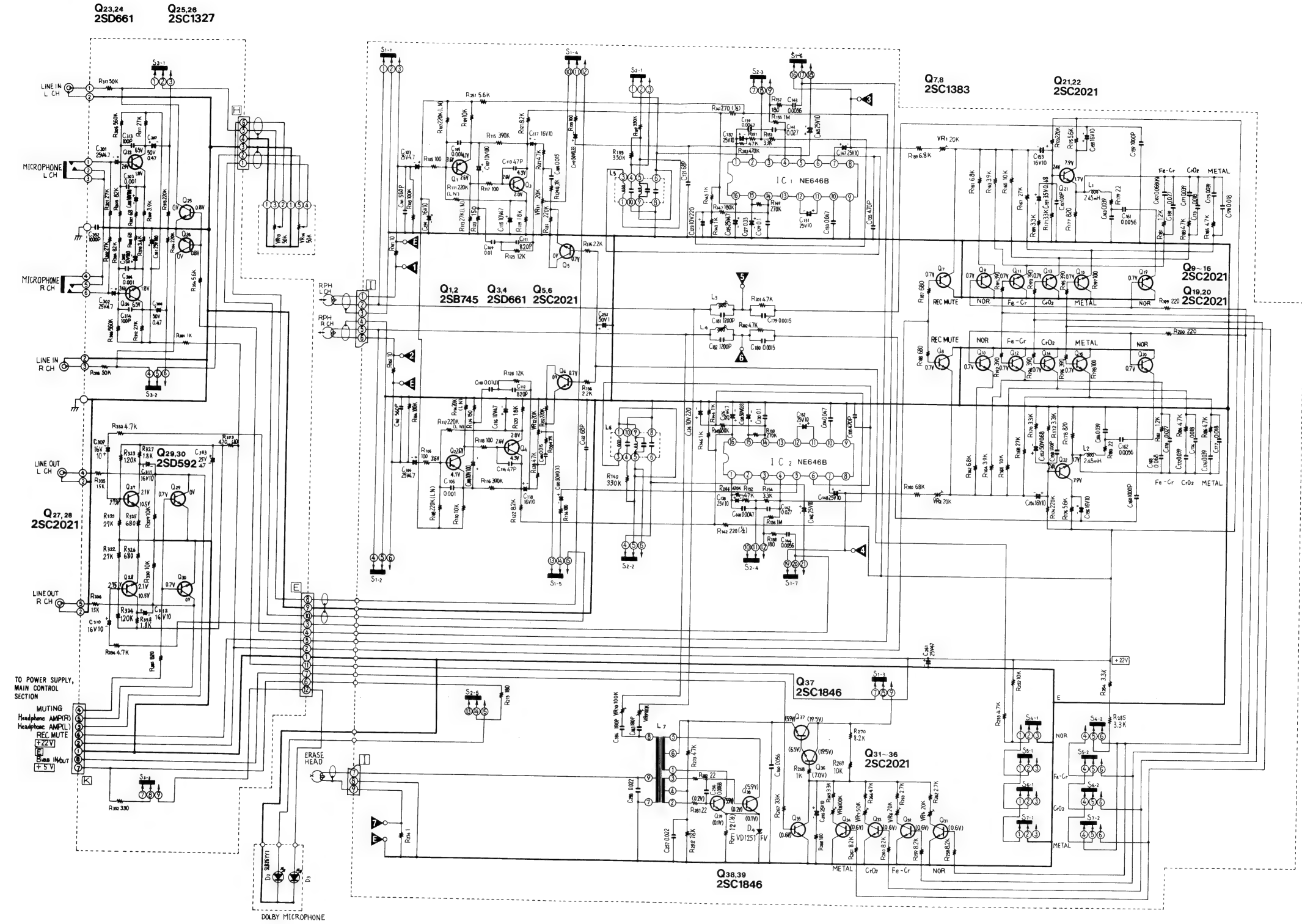
| ITEM | MEASUREMENT & ADJUSTMENT |
|--|--|
| <p>Dolby NR circuit</p> <p>Condition:</p> <ul style="list-style-type: none">* Record mode* Input level control ... MAX <p>Equipment:</p> <ul style="list-style-type: none">* VTVM * AF oscillator* ATT * Oscilloscope | <ol style="list-style-type: none">Place UNIT into record mode, set the Dolby NR switch to OUT position and supply to LINE IN to obtain -34.5dB at TP3 (L-CH), TP4 (R-CH) (frequency 5kHz).Confirm that the value at IN position is 8 (±2.5)dB greater than the value at OUT position of Dolby NR switch. |
| <p>Record plunger position adjustment</p> | <ol style="list-style-type: none">Loosen screws (D) shown in fig. 33.Push the plunger all the way into the solenoid as shown in fig. 33.Move plunger angle (E), so that the record/playback select switch (S1) is completely shifted in the direction of arrow (H) as shown in fig. 33.After adjustment, lock screws (D) with lacquer. <div></div> <p>Fig. 33</p> |

| Ref. No. | Part No. | Part Name & Description |
|---|---|-----------------------------|
| CABINET PARTS | | |
| G1 | QYP0893 "Silver Type" QYP0893K "Black Type" | Front Panel Assembly |
| G1-1 | QG01585 "Silver Type" QG01585K "Black Type" | Push Button (A) |
| G1-2 | QG01586 "Silver Type" QG01586K "Black Type" | Push Button (B) |
| G1-3 | QG01596 "Silver Type" QG01596K "Black Type" | Push Button (Select Button) |
| G1-4 | QBC1148 | Spring |
| G1-5 | QG01594 "Silver Type" QG01594K "Black Type" | Push Button (Power ON/OFF) |
| G1-6 | QBC1187 | Spring |
| G1-7 | QXB0642 "Silver Type" QXB0642K "Black Type" | Push Button (Eject Button) |
| G1-8 | QBC1188 | Spring |
| G1-9 | XUC25FT | Stop Ring |
| G2 | QYT0540 "Silver Type" QYT0540K "Black Type" | Volume Knob (A) |
| G3 | QYT0541 "Silver Type" QYT0541K "Black Type" | Volume Knob (B) |
| G4 | QGC1145 "Silver Type" QGC1145K "Black Type" | Case Cover |
| G5 | QK2967 "Silver Type" QK2967K "Black Type" | Cassette Lid |
| G6 | QH01291 "Silver Type" QH01291K "Black Type" | Cassette Lid Holding Screw |
| G7 | QBG1551 | Cushion Rubber |
| G8 | QGB1962 "Silver Type" QGB1962K "Black Type" | Switch Cover |
| G9 | QKJ0360 "Silver Type" QKJ0360K "Black Type" | Meter Cover (A) |
| G10 | QGL1140 | Meter Cover (B) |
| G11 | QGC1172 "Silver Type" QGC1172K "Black Type" | Rear Board |
| G12 | QYB0395 | Bottom Cover Assembly |
| *For All European areas and Australia. | | |
| G12-1 | QKA1080 | Rubber Foot |
| G13 | XTS3+8BFX | Screw ③3×8 |
| G14 | XTB3+8JFX "Silver Type" XTB3+8JFX "Black Type" | Screw ③3×8 |
| G15 | XTB3+8JFX | Screw ③3×8 |
| G16 | QGS2716 | Main Name Plate |
| *For All European areas except United Kingdom. | | |
| G17 | QGS2717 | " |
| *For United Kingdom and Australia. | | |
| G18 | QGS2718 | " |
| *For Asia, Latin America, Middle East and Africa areas. | | |
| G17 | QGR0108 | Cassette Lid |
| G18 | XSN26+4 | Screw ③2.6×4 |
| ACCESSORIES | | |
| A1 | RP023A | Connection Cord |
| A2 | QFTC30S011TZ | Demonstration Tape |

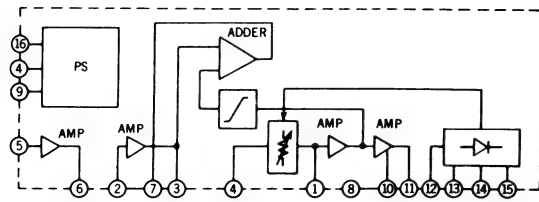


| Ref. No. | Part No. | Part Name & Description |
|---|-------------|-------------------------|
| A3 | QJP0603S | AC Plug Adaptor |
| *For Asia, Latin America, Middle East and Africa areas. | | |
| A4 | QQT2675 | Instruction Book |
| *For All European areas except United Kingdom. | | |
| | QQT2674 | " |
| *For United Kingdom and Australia. | | |
| | QQT2676 | " |
| *For Asia, Latin America, Middle East and Africa areas. | | |
| PACKINGS | | |
| P1 | QPN3901 | Inside Carton |
| P2 | QPA0493 | Cushion (A) |
| P3 | QPA0494 | Cushion (B) |
| P4 | XZB36X46A02 | Poly Bag |

SCHEMATIC DIAGRAM
MAIN AMP SECTION



IC1,2 NE646B



SPECIFICATIONS • Input level control ... MAX

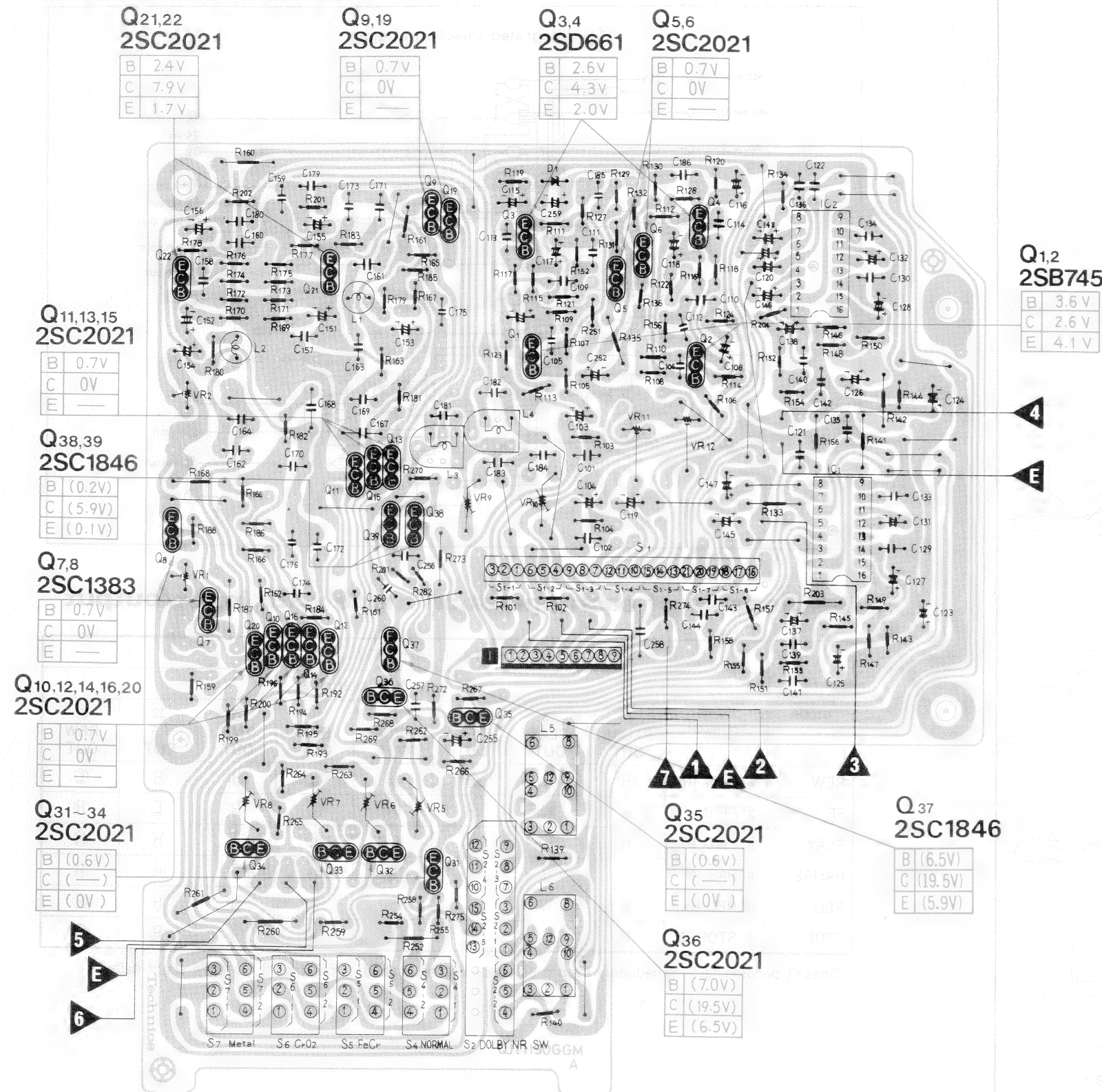
| | |
|---|---|
| Playback S/N ratio Test tape ... QZZCFM | More than 47 dB |
| Overall distortion Test tape ... QZZCRA for Normal ... QZZCRX for CrO ₂ ... QZZCRY for Fe-Cr ... QZZCRZ for Metal | Less than 3.5% |
| Overall S/N ratio Test tape ... QZZCRA | More than 45 dB (without NAB filter) |

NOTE:

- S1-1~S1-7 Record/playback select switch (shown in playback position).
- S2-1~S2-5 Dolby IN/OUT select switch (shown in OUT position).
- S3-1~S3-3 Input MIC/LINE select switch (shown in LINE position).
- S4-1, S4-2 Tape select switch (for Normal tape).
- S5-1, S5-2 Tape select switch (for Fe-Cr tape).
- S6-1, S6-2 Tape select switch (for CrO₂ tape).
- S7-1, S7-2 Tape select switch (for Metal tape).
- VR1, 2 Recording current adjustment VR.
- VR5 Bias current adjustment VR (for Normal tape).
- VR6 Bias current adjustment VR (for Fe-Cr tape).
- VR7 Bias current adjustment VR (for CrO₂ tape).
- VR8 Erase current adjustment VR (for Metal tape).
- VR9 Bias current adjustment VR (for Metal tape).
- VR10 Bias current adjustment VR (for Normal tape).
- VR11, 12 Playback gain adjustment VR.
- VR13, 14 Input level control.
- L3, 4 Bias trap coil.
- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise.
K = 1,000 Ω .
- Capacity are in microfarads (μ F) unless specified otherwise.
P = Pico-farads.
- All voltage values shown in circuitry are under no signal condition and record mode with volume control at minimum position.
For measurement, use VTVM.
- The voltage enclose () indicates are measured during record mode.
- The mark (▼) shows test point. e.g. ▼ = Test point 1.

CIRCUIT BOARD

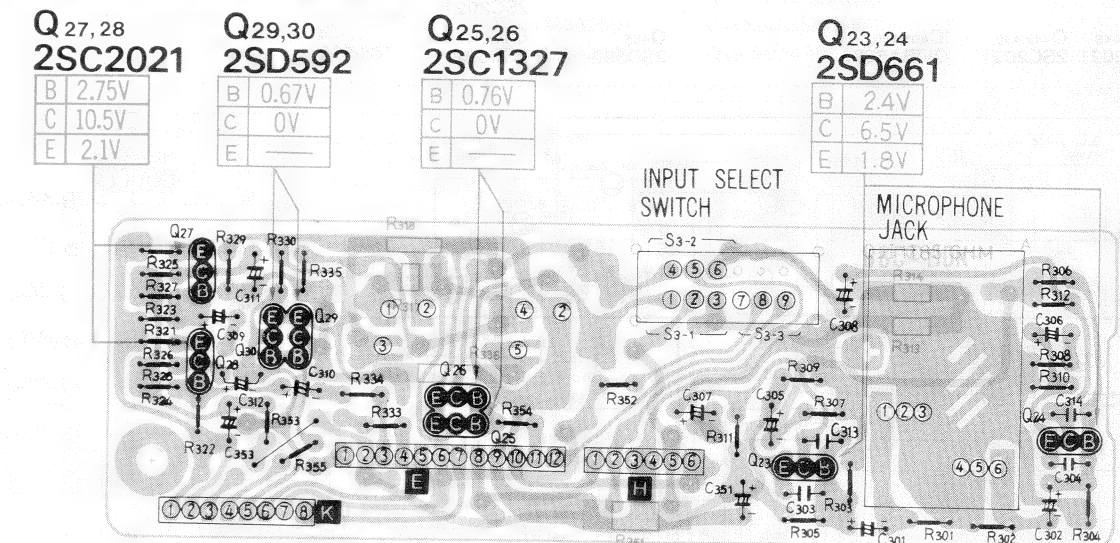
MAIN AMP CIRCUIT BOARD



NOTE:

The circuit shown in red on the conductor is +B (bias) circuit.
Values indicated in are DC voltages between the chassis and electrical parts.
The voltage enclose () indicates are measured during record mode.

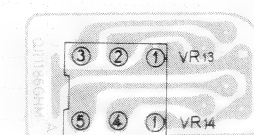
JACK CIRCUIT BOARD



LED CIRCUIT BOARD



INPUT LEVEL CONTROL CIRCUIT BOARD



NOTE: RESISTORS

ERG Carbon
ERG Metal-oxide
ERD Metal-film
ERX Metal-film
ERQ Fuse type metallic
ERC Solid
ERF Cement

CAPACITORS

ECG Ceramic
ECK Ceramic
ECC Ceramic
ECF Ceramic
EQM Polyester film
ECQ Polyester film
EQF Polypropylene
ECE Electrolytic
ECEN Non polar electrolytic
EQS Polystyrene
ECS Tantalum

NOTE: Δ indicates that only parts specified by the manufacturer be used for safety.

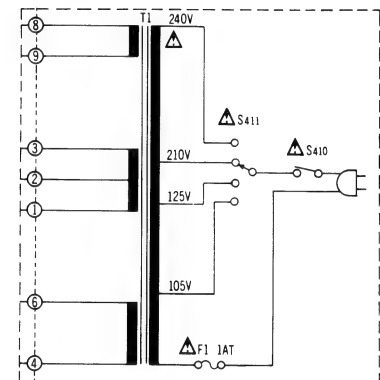
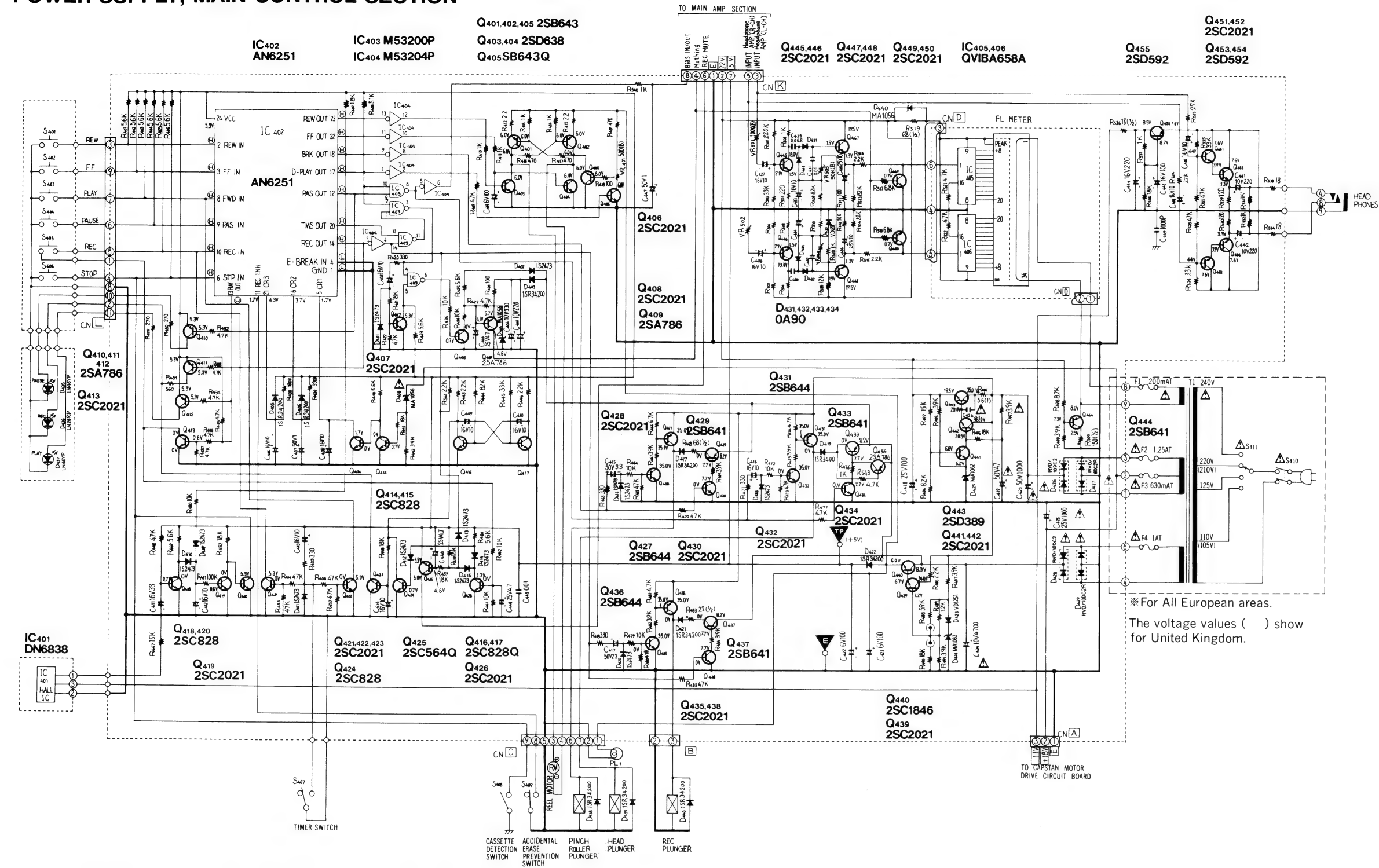
| Ref. No. | Part No. | Ref. No. | Part No. | Ref. No. | Part No. |
|---------------------|------------|---------------------|------------|---------------------|------------|
| RESISTORS | | | | | |
| R101, 102 | ERD25FJ100 | R147, 148 | ERD25TJ184 | R201, 202 | ERD25FJ472 |
| R103, 104 | ERD25TJ104 | R149, 150 | ERD25TJ274 | R203, 204 | ERD25TJ474 |
| R105, 106 | ERD25FJ101 | R151, 152 | ERD25TJ473 | R251 | ERD25FJ562 |
| R107, 108 | ERD25TJ224 | R153, 154 | ERD25FJ332 | R252 | ERD25FJ103 |
| R109, 110 | ERD25FJ103 | R155, 156 | ERD25FJ105 | R254 | ERD25FJ332 |
| R111, 112 | ERD25TJ224 | R157, 158 | ERD25FJ181 | R255 | ERD25FJ472 |
| R113, 114 | ERD25TJ273 | R159 | ERD25FJ682 | R258, 259, 260, 261 | ERD25FJ822 |
| R115, 116 | ERD25TJ394 | R160 | ERD25FJ682 | R262, 263, 264 | ERD25FJ272 |
| R117, 118 | ERD25FJ101 | R161, 162 | ERD25FJ682 | R265 | ERD25FJ332 |
| R119, 120 | ERD25FJ182 | R163, 164 | ERD25FJ392 | R266 | ERD25FJ101 |
| R121, 122 | ERD25FJ822 | R165, 166 | ERD25FJ103 | R267 | ERD25FJ333 |
| R123, 124 | ERD25FJ151 | R167 | ERD25TJ273 | R268 | ERD25FJ102 |
| R125, 126 | ERD25TJ123 | R168 | ERD25TJ273 | R269 | ERD25FJ103 |
| R127, 128, 129, 130 | ERD25FJ472 | R169, 170 | ERD25FJ332 | R271 | ERD50FJ120 |
| R131, 132 | ERD25TJ224 | R171, 172 | ERD25FJ332 | R272 | ERD25FJ182 |
| R133, 134 | ERD25FJ101 | R173, 174 | ERD25TJ224 | R273 | ERD25FJ472 |
| R135, 136 | ERD25FJ222 | R175, 176 | ERD25FJ562 | R274 | ERD25FJ180 |
| R139, 140 | ERD25TJ334 | R177, 178 | ERD25FJ821 | R275 | ERD25FJ181 |
| R141, 142 | ERD50FJ271 | R179, 180 | ERD25FJ220 | R281, 282 | ERD25FJ220 |
| R143, 144, 145, 146 | ERD25FJ102 | R181, 182 | ERD25FJ122 | R285 | ERD25FJ332 |
| R199, 200 | ERD25FJ221 | R183, 184, 185, 186 | ERD25FJ472 | R301, 302 | ERD25TJ273 |
| | | R187, 188 | ERD25FJ681 | R303, 304 | ERD25TJ823 |
| | | | ERD25FJ391 | R305, 306 | ERD25TJ564 |
| | | | | R307, 308 | ERD25FJ680 |
| | | | | R309, 310 | ERD25FJ392 |
| | | | | R311, 312 | ERD25TJ273 |
| | | | | R321, 322 | ERD25TJ273 |
| | | | | R323, 324 | ERD25TJ124 |

| Ref. No. | Part No. | Ref. No. | Part No. | Ref. No. | Part No. | Ref. No. | Part No. | Ref. No. | Part No. | Ref. No. | Part No. | Ref. No. | Part No. |
|---------------------|--|--|------------|---------------------|-------------|----------------|--------------|---------------------|----------|----------|----------|----------|----------|
| R325, 326 | ERD25FJ681 | R536 | ERQ12HJ180 | C105, 106 | ECFWD102KVY | C402 | ECEA1HS100 | Q428 | 25C2021 | | | | |
| R327, 328 | ERD25FJ182 | *For All European areas. | | C107, 108 | ECEA10M100 | C403 | ECEA25N4R7 | Q429 | 25B641R | | | | |
| R329, 330 | ERD25FJ103 | *For Asia, Latin America, Middle East, Africa areas and Australia. | | C109, 110 | ECQM1H103JZ | C404 | ECEA1AS531 | Q430 | 25C2021 | | | | |
| R333, 334 | ERD25FJ472 | | | C111, 112 | ECKD1H821K | C405 | ECEA1AS221 | Q431 | 25B644 | | | | |
| R335 | ERD25FJ152 | | | C113, 114 | ECCD1H470K | C406 | ECEA1HS100 | Q432 | 25B2021 | | | | |
| R352 | ERD25FJ331 | | | C115 | ECFS10E47 | C407 | ECEA2AS010 | Q433 | 25B641R | | | | |
| R353 | ERD50FJ471 | | | C116 | ECEA1AS470 | C408, 409, 410 | | Q434, 435 | | | | | |
| R354 | ERD25FJ562 | | | C117, 118 | ECEA1HS100 | C411 | ECEA1HS100 | | 25C2021 | | | | |
| R405 | ERD25FJ562 | | | C119, 120 | ECEA50MR33 | C412, 413, 414 | | Q436 | 25B644 | | | | |
| R409 | ERD25TJ473 | | | C121, 122 | ECCD1H680K | C415 | ECEA2AS3R3 | Q437 | 25B641R | | | | |
| R412 | ERD25FJ2R2 | | | C123, 124 | ECEA1AS221 | C416 | ECEA1HS100 | Q438, 439 | | | | | |
| R415 | ERD25FJ2R2 | | | C125, 126 | ECEA1ES470 | C417 | ECEA2AS2R2 | Q440 | 25C1846 | | | | |
| R416, 417 | ERD25FJ471 | | | C127, 128 | ECEA50MR33 | C418 | ECEA1ES101 | Q441 | 25C2021 | | | | |
| R418 | ERD25FJ101 | | | C129, 130 | ECFWD104MXY | C419 | ECEA1HS470 | Q443 | 25C389 | | | | |
| R419 | ERD25FJ471 | | | C131, 132 | ECEA1HS100 | C420 | ECEA1HS102 | Q444 | 25B641R | | | | |
| R420 | ERD25FJ331 | | | C133, 134 | ECQM1H473JZ | C422, 423 | | Q445, 446 | | | | | |
| R421 | ERD25TJ183 | | | C135, 136 | ECKD1H471K | C424 | ECEA1AS101 | | 25C2021 | | | | |
| R422 | ERD25TJ473 | | | C137, 138 | ECEA1HS100 | C425 | ECEA1AS472 | Q447, 448, 449, 450 | 25C2021 | | | | |
| R423 | ERD25FJ562 | | | C139, 140 | ECQM1H472JZ | C426 | ECFWD104MXY | Q451, 452 | 25C2021 | | | | |
| R424 | ERD25FJ103 | | | C141, 142 | ECQM1H273JZ | C427, 428 | ECEA1HS100 | Q453, 454, 455 | | | | | |
| R425 | ERD25FJ562 | | | C143, 144 | ECQM1H562JZ | C429, 430 | ECFDD683MXY | Q456 | 25A786 | | | | |
| R426 | ERD25FJ103 | | | C145, 146, 147, 148 | ECEA1HS100 | C431, 432 | ECFWD103KVY | Q601, 602, 603, 604 | | | | | |
| R427 | ERD25FJ472 | | | C149, 150 | ECKD1H102KB | C433, 434 | ECEA1HS100 | Q605 | 25B643Q | | | | |
| R428 | ERD25FJ101 | | | C151 | ECFS35ER68 | C435, 436 | ECEA1HS100 | | 25A885 | | | | |
| R429, 430 | ERD25FJ271 | | | C152 | ECEA50Z6R8 | C437, 438 | ECEA1HS100 | | | | | | |
| R431 | ERD25FJ561 | | | C153, 154 | ECEA1HS100 | C441, 442 | ECEA1HS100 | | | | | | |
| R432, 433, 434, 435 | ERD25FJ472 | | | C155 | ECFS16E10 | C443 | ECEA1AS221 | | | | | | |
| R436, 437 | ERD25TJ473 | | | C156 | ECEA1HS100 | C444 | ECFDD103KVY | | | | | | |
| R438 | ERD25TJ184 | | | C157, 158 | ECEA1HS100 | C445 | ECEA1ES101 | | | | | | |
| R439 | ERD25TJ334 | | | C159, 160 | ECKD1H102KB | C446 | ECEA25N4R7 | | | | | | |
| R440 | ERD25FJ562 | | | C161, 162 | ECQM1H562KZ | C447 | ECEA1HS010 | | | | | | |
| R441 | ERD25TJ183 | | | C163, 164 | ECQM1H393KZ | C448 | ECEA1ES47R | | | | | | |
| R442 | ERD25FJ392 | | | C167, 168 | ECQM1H683KZ | C449, 450, 451 | | | | | | | |
| R443 | ERD25FJ222 | | | C169, 170 | ECQM1H273KZ | C601 | ECEA50M1R | | | | | | |
| R444 | ERD25TJ823 | | | C171, 172 | ECQM1H393KZ | C602, 603 | | | | | | | |
| R445 | ERD25TJ333 | | | C173, 174 | ECQM1H223KZ | C604 | ECQM1H562KZ | | | | | | |
| R446 | ERD25FJ222 | | | C175, 176 | ECQM1H393KZ | C605 | ECKD1H102M20 | | | | | | |
| R447 | ERD25TJ153 | | | C179, 180 | ECQM1H152KZ | C606 | ECQM1H392KZ | | | | | | |
| R449 | ERD25FJ562 | | | C181, 182 | ECQS1122JZ | C607 | ECQM1H473KZ | | | | | | |
| R450 | ERD25FJ103 | | | C183, 184 | ECCD1H181K | C608 | ECEA50Z3R3 | | | | | | |
| R451 | ERD25TJ104 | | | C185, 186 | ECQM1H153KZ | C609 | ECQM1H273KZ | | | | | | |
| R452 | ERD25TJ183 | | | C252 | ECEA1HS100 | C610 | ECEA50Z6R8 | | | | | | |
| R453, 454 | ERD25TJ473 | | | C255 | ECEA1HS100 | C611, 612 | ECEA25N4R7 | | | | | | |
| R455 | ERD25FJ331 | | | C256 | ECQM1H682KZ | C613 | ECFS25E10 | | | | | | |
| R456, 457 | ERD25TJ473 | | | C257 | ECQM1H223KZ | C614 | ECFS25E1Z | | | | | | |
| R458, 459 | ERD25TJ183 | | | C258 | ECQF4223KZ | C615 | ECQM1H153KZ | | | | | | |
| R460 | ERD25FJ562 | | | C259 | ECFS16E10 | C616 | ECFS10E3R3 | | | | | | |
| R461, 462 | ERD25FJ103 | | | C260 | ECFWD563KXY | C617 | ECQS1682JZ | | | | | | |
| R464 | ERD25FJ103 | | | C261 | ECEA1ES470 | | | | | | | | |
| R465 | ERD25TJ473 | | | C301, 302 | ECEA25M4R7 | | | | | | | | |
| R466 | ERD25FJ472 | | | C303, 304 | ECFWD102KVY | | | | | | | | |
| R467 | ERD25FJ392 | | | C305, 306 | ECEA1AS101 | | | | | | | | |
| R472 | ERD25FJ103 | | | C307, 308 | ECEA50MR22 | | | | | | | | |
| R473 | ERD25TJ473 | | | C309, 310, 311, 312 | ECEA1HS100 | | | | | | | | |
| R474 | ERD25FJ472 | | | C313, 314 | ECCD1H101KC | | | | | | | | |
| R475 | ERD25FJ392 | | | C351 | ECEA1ES101 | | | | | | | | |
| R476 | ERD25FJ102 | | | C353 | ECEA1ES470 | | | | | | | | |
| R477 | ERD25TJ473 | | | C401 | ECEA0J5101 | | | | | | | | |
| R478 | ERD25FJ331 | | | | | | | | | | | | |
| R481 | ERD25FJ472 | | | | | | | | | | | | |
| R482 | ERD25FJ392 | | | | | | | | | | | | |
| R483 | ERD50FJ220 | | | | | | | | | | | | |
| R484 | ERD25FJ392 | | | | | | | | | | | | |
| R485 | ERD25TJ183 | | | | | | | | | | | | |
| R486 | ERD25FJ222 | | | | | | | | | | | | |
| R487, 488 | ERD25FJ392 | | | | | | | | | | | | |
| R489 | ERD25TJ122 | | | | | | | | | | | | |
| R490 | ERD25TJ183 | | | | | | | | | | | | |
| R491 | ERD25FJ392 | | | | | | | | | | | | |
| R492 | ERD25TJ153 | | | | | | | | | | | | |
| R493 | ERD25FJ392 | | | | | | | | | | | | |
| R494 | ERD25FJ822 | | | | | | | | | | | | |
| R495 | ERQ12HJ5R6 | | | | | | | | | | | | |
| | *For All European areas. | | | | | | | | | | | | |
| | *For Asia, Latin America, Middle East, Africa areas and Australia. | | | | | | | | | | | | |

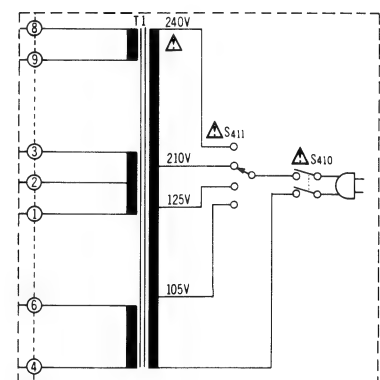
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|--|------------|---------------------|-------------|----------------|--------------|---------------------|-----------|----------|----------|----------|----------|----------|----------|
| R536 | ERQ12HJ180 | C105, 106 | ECFWD102KVY | C402 | ECEA1HS100 | Q428 | 25C2021 | | | | | | |
| *For All European areas. | | C107, 108 | ECEA10M100 | C403 | ECEA25N4R7 | Q429 | 25B641R | | | | | | |
| *For Asia, Latin America, Middle East, Africa areas and Australia. | | C109, 110 | ECQM1H103JZ | C404 | ECEA1AS531 | Q430 | 25C2021 | | | | | | |
| | | C111, 112 | ECKD1H821K | C405 | ECEA1AS221 | Q431 | 25B644 | | | | | | |
| | | C113, 114 | ECCD1H470K | C406 | ECEA1HS100 | Q432 | 25B2021 | | | | | | |
| | | C115 | ECFS10E47 | C407 | ECEA2AS010 | Q433 | 25B641R | | | | | | |
| | | C116 | ECEA1AS470 | C408, 409, 410 | | Q434, 435 | | | | | | | |
| | | C117, 118 | ECEA1HS100 | C411 | ECEA1HS100 | | 25C2021 | | | | | | |
| | | C119, 120 | ECEA50MR33 | C412, 413, 414 | | Q436 | 25B644 | | | | | | |
| | | C121, 122 | ECCD1H680K | C415 | ECEA2AS3R3 | Q437 | 25B641R | | | | | | |
| | | C123, 124 | ECEA1AS221 | C416 | ECEA1HS100 | Q438, 439 | | | | | | | |
| | | C125, 126 | ECEA1ES470 | C417 | ECEA2AS2R2 | Q440 | 25C1846 | | | | | | |
| | | C127, 128 | ECEA50MR33 | C418 | ECEA1ES101 | Q441 | 25C2021 | | | | | | |
| | | C129, 130 | ECFWD104MXY | C419 | ECEA1HS470 | Q443 | 25C389 | | | | | | |
| | | C131, 132 | ECEA1HS100 | C420 | ECEA1HS102 | Q444 | 25B641R | | | | | | |
| | | C133, 134 | ECQM1H473JZ | C422, 423 | | Q445, 446 | | | | | | | |
| | | C135, 136 | ECKD1H471K | C424 | ECEA1AS101 | | 25C2021 | | | | | | |
| | | C137, 138 | ECEA1HS100 | C425 | ECEA1AS472 | Q447, 448, 449, 450 | 25C2021 | | | | | | |
| | | C139, 140 | ECQM1H472JZ | C426 | ECFWD104MXY | Q451, 452 | 25C2021 | | | | | | |
| | | C141, 142 | ECQM1H273JZ | C427, 428 | ECEA1HS100 | Q453, 454, 455 | | | | | | | |
| | | C143, 144 | ECQM1H562JZ | C429, 430 | ECFDD683MXY | Q456 | 25D592NCS | | | | | | |
| | | C145, 146, 147, 148 | ECEA1HS100 | C431, 432 | ECFWD103KVY | Q601, 602, 603, 604 | | | | | | | |
| | | C149, 150 | ECKD1H102KB | C433, 434 | ECEA1HS100 | Q605 | 25B643Q | | | | | | |
| | | C151 | ECFS35ER68 | C435, 436 | ECEA1HS100 | | 25A885 | | | | | | |
| | | C152 | ECEA50Z6R8 | C437, 438 | ECEA1HS100 | | | | | | | | |
| | | C153, 154 | ECEA1HS100 | C441, 442 | ECEA1HS100 | | | | | | | | |
| | | C155 | ECFS16E10 | C443 | ECEA1AS221 | | | | | | | | |
| | | C156 | ECEA1HS100 | C444 | ECFDD103KVY | | | | | | | | |
| | | C157, 158 | ECEA1HS100 | C445 | ECEA1ES101 | | | | | | | | |
| | | C159, 160 | ECKD1H102KB | C446 | ECEA25N4R7 | | | | | | | | |
| | | C161, 162 | ECQM1H562KZ | C447 | ECEA1HS010 | | | | | | | | |
| | | C163, 164 | ECQM1H393KZ | C448 | ECEA1ES47R | | | | | | | | |
| | | C167, 168 | ECQM1H683KZ | C449, 450, 451 | | | | | | | | | |
| | | C169, 170 | ECQM1H273KZ | C601 | ECEA50M1R | | | | | | | | |
| | | C171, 172 | ECQM1H393KZ | C602, 603 | | | | | | | | | |
| | | C173, 174 | ECQM1H223KZ | C604 | ECQM1H562KZ | | | | | | | | |
| | | C175, 176 | ECQM1H393KZ | C605 | ECKD1H102M20 | | | | | | | | |
| | | C179, 180 | ECQM1H152KZ | C606 | ECQM1H392KZ | | | | | | | | |
| | | C181, 182 | ECQS1122JZ | C607 | ECQM1H473KZ | | | | | | | | |
| | | C183, 184 | ECCD1H181K | C608 | ECEA50Z3R3 | | | | | | | | |
| | | C185, 186 | ECQM1H153KZ | C609 | ECQM1H273KZ | | | | | | | | |
| | | C252 | ECEA1HS100 | C610 | ECEA50Z6R8 | | | | | | | | |
| | | C255 | ECEA1HS100 | C611, 612 | ECEA25N4R7 | | | | | | | | |
| | | C256 | ECQM1H682KZ | C613 | ECFS25E10 | | | | | | | | |
| | | C257 | ECQM1H223KZ | C614 | ECFS25E1Z | | | | | | | | |
| | | C258 | ECQF4223KZ | C615 | ECQM1H153KZ | | | | | | | | |
| | | C259 | ECFS16E10 | C616 | ECFS10E3R3 | | | | | | | | |

SCHEMATIC DIAGRAM

POWER SUPPLY, MAIN CONTROL SECTION

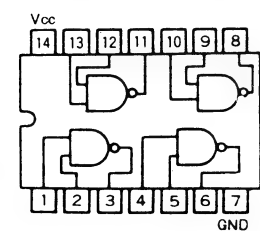


For Asia, Latin America, Middle East and Africa areas.

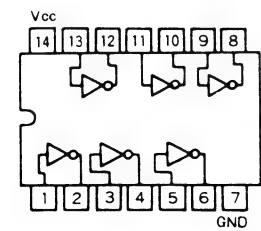


For Australia.

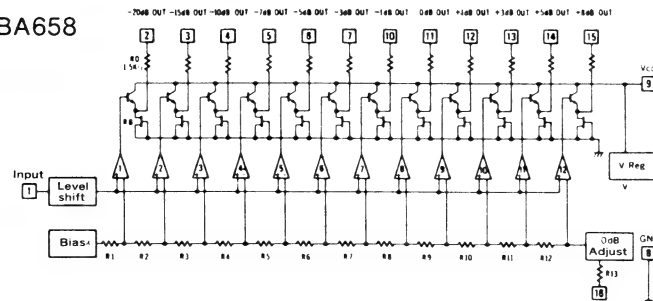
IC403 M53200P



IC404 M53204P



IC405,406 QVIBA658



NOTE:

- S401 Rewind button switch.
- S402 Fast forward button switch.
- S403 Playback button switch.
- S404 Pause button switch.
- S405 Record button switch.
- S406 Stop button switch.
- S407 Timer switch.
- S408 Cassette detection switch.
- S409 Erase safety switch.
- S410 Power ON/OFF switch.
- VR401 Takeup torque adjustment VR.</

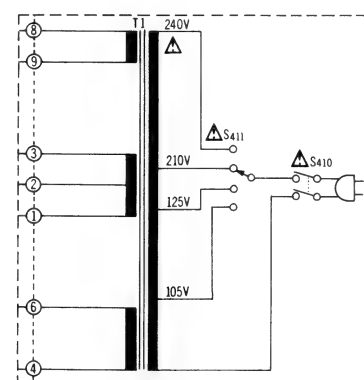
- VR501, VR502 FL meter adjustment VR (for “0dB”).
- VR503, VR504 FL meter adjustment VR (for “-20dB”).
- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise.
K = 1,000 Ω .
- Capacity are in microfarads (μF) unless specified otherwise.
P = Pico-farads.
- All voltage values shown in circuitry are under no signal condition and record mode with volume control at minimum position.
For measurement, use VTVM.
- Δ indicates that only parts specified by the manufacturer be used for safety.

I²L (Integrated Injection Logic)

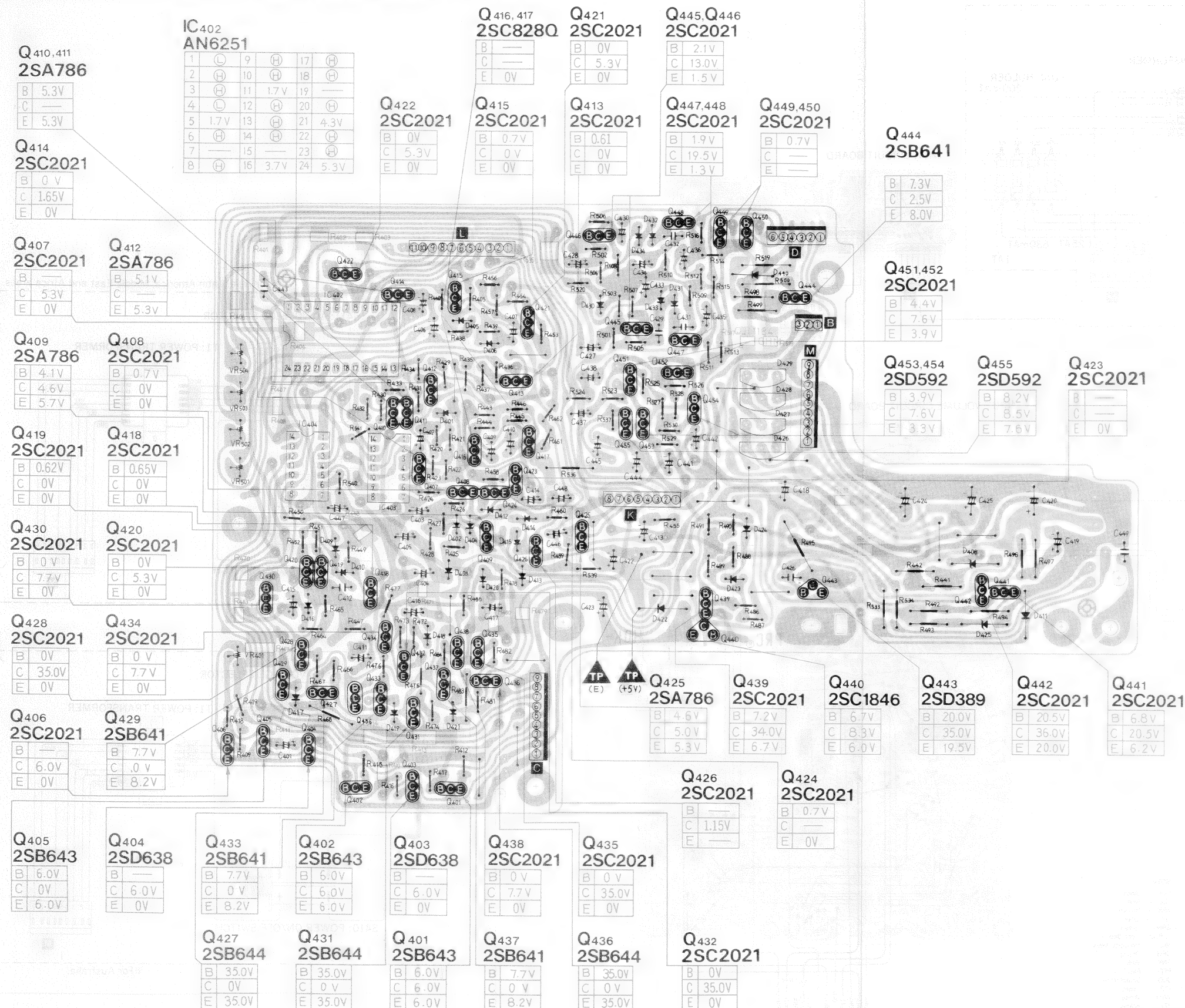
The diagram illustrates the internal structure of the I²L (Integrated Injection Logic) IC. It features a central array of transistors and resistors. The inputs on the left are: REC IN (10), REC INH (11), PAS IN (9), FWD IN (8), STP IN (6), CR1 (5), CR2 (4), FF IN (3), and REW IN (2). The outputs on the right are: REC OUT (14), Vcc (24), PAS OUT (12), PLY OUT (13), BRK OUT (18), D PLY OUT (17), TMS OUT (20), CR3 (21), CR2 (16), FF OUT (22), and REW OUT (23). The circuit also includes two Pulse Stretcher blocks and a GND pin (1).

| Operation mode | IC (AN6251) | | | | | | | | |
|----------------|----------------|-------------------|------------------|-----------------|--------------------|-----------------|-----------------|----------------|-----------------|
| | Input terminal | Output terminal | | | | | | | |
| | | ⑫ PAUSE OUT | ⑬ PLAY OUT | ⑭ REC OUT | ⑰ D-PLAY OUT | ⑱ BRK OUT | ㉑ TMS OUT | ㉒ FF OUT | ㉓ REW OUT |
| REW | ㉔ REW IN | H | H | H | H | L | H | H | L |
| FF | ㉕ FF IN | H | H | H | H | L | H | L | H |
| PLAY | ㉖ FWD IN | H | L | H | L* | L | H | H | H |
| PAUSE | ㉗ PAS IN | L | H | H | H | H | H | H | H |
| REC | ㉘ REC IN | H | H | L | H | H | H | H | H |
| STOP | ㉙ STOP IN | H | H | H | H | H | H | H | H |

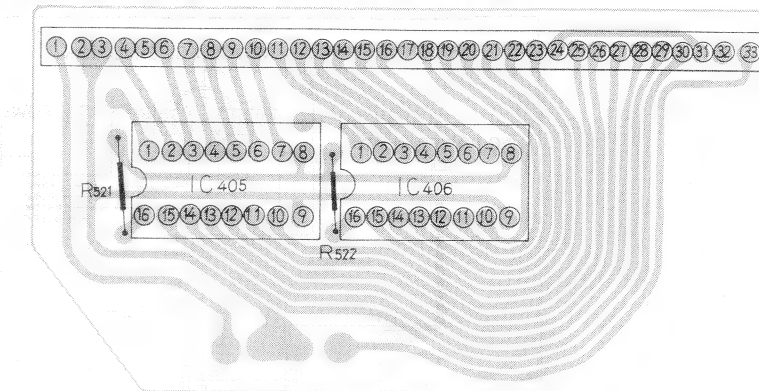
* Doesn't become "L" immediately even if playback button pushed; becoming "L" after a slight delay.



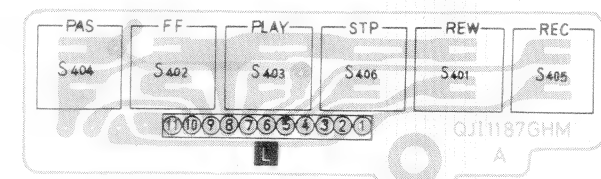
POWER SUPPLY, MAIN CONTROL CIRCUIT BOARD



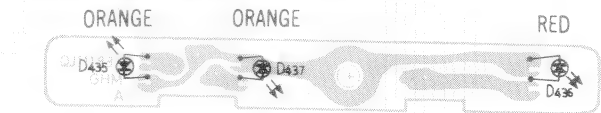
FL METER CIRCUIT BOARD



CONTROL KEY SWITCH CIRCUIT BOARD



LED CIRCUIT BOARD



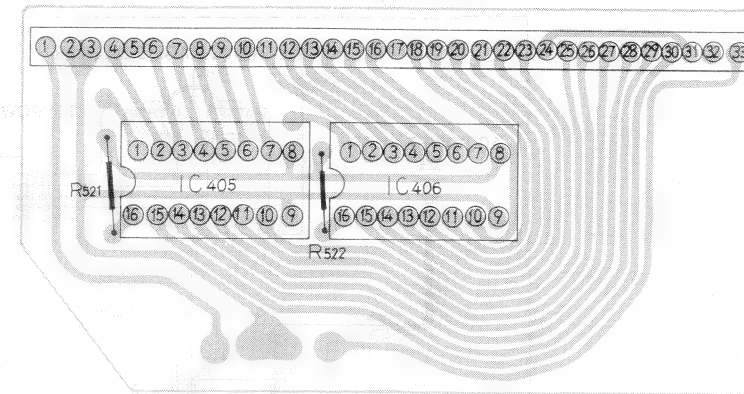
HALL IC CIRCUIT BOARD



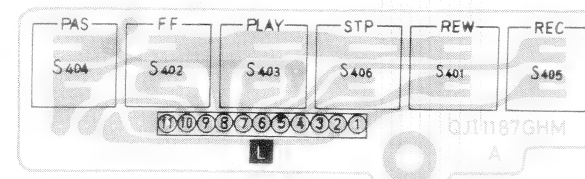
NOTE:
The circuit shown in red on the conductor is +B (bias) circuit.
Values indicated in are DC voltage between the chassis and electrical parts.

NOTE:
• VR601.....
• Resistance are
K=1,000Ω.
• Capacity are in
P=Pico-farads
• All voltage val
and record mo
For measure

FL METER CIRCUIT BOARD



CONTROL KEY SWITCH CIRCUIT BOARD



LED CIRCUIT BOARD

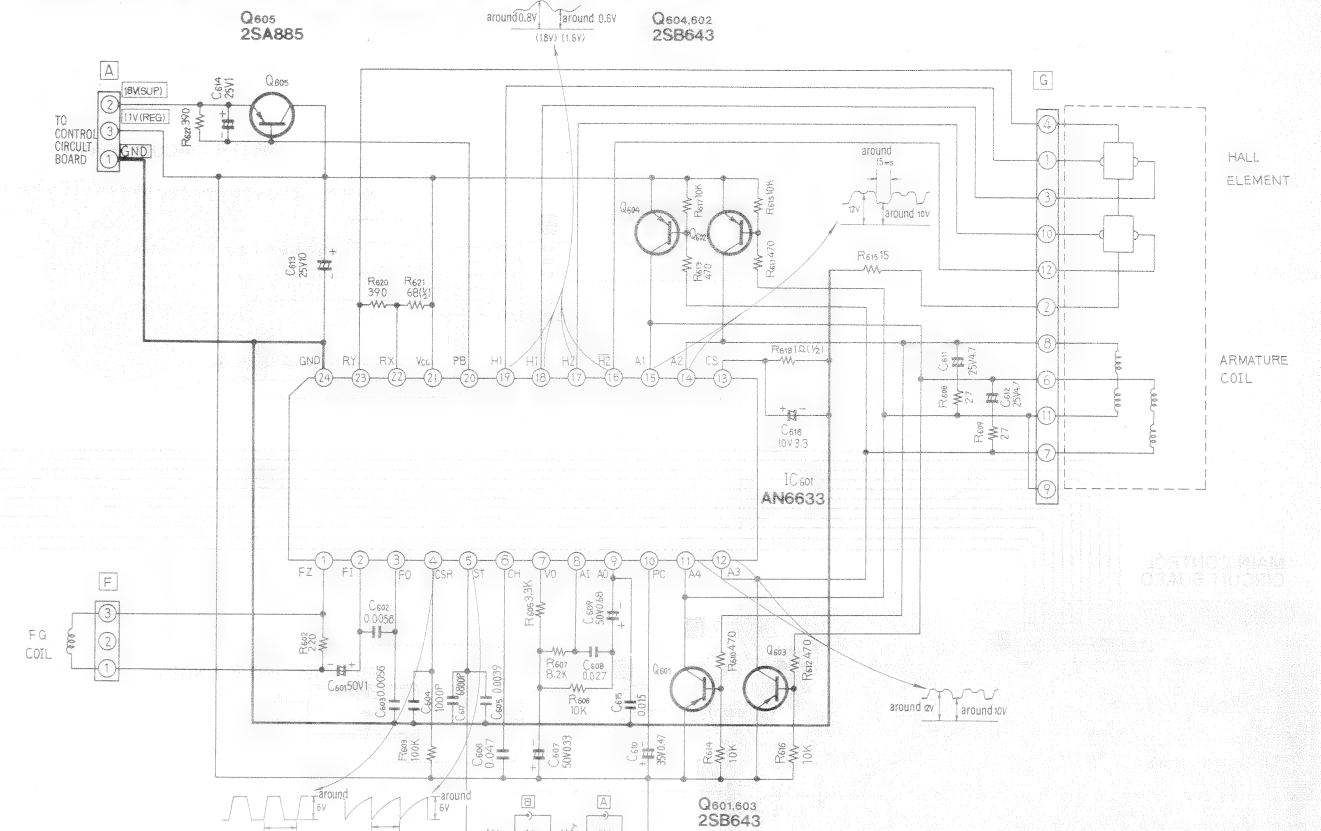


HALL IC CIRCUIT BOARD

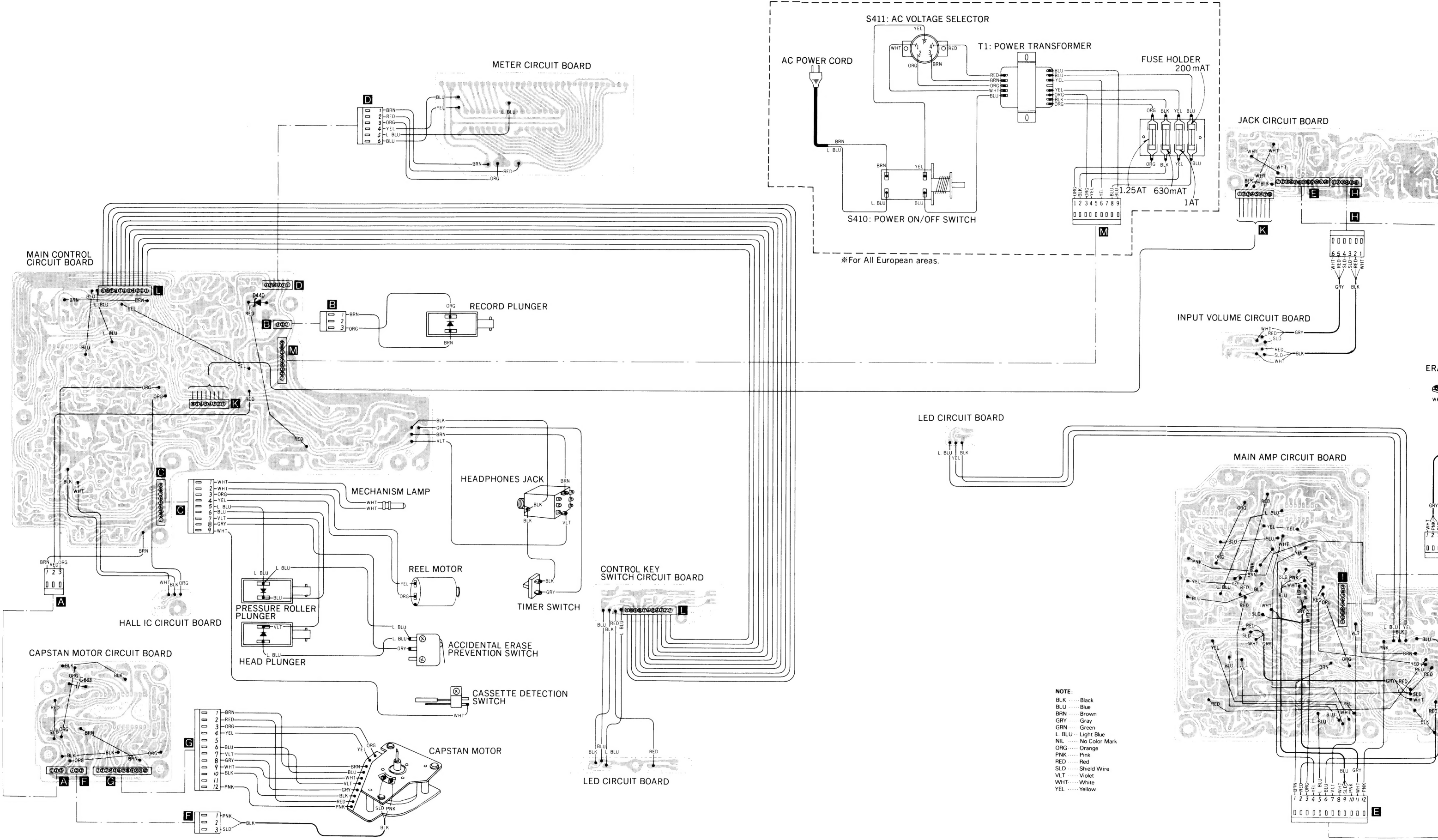


NOTE:

The circuit shown in red on the conductor is +B (bias) circuit. Values indicated in are DC voltage between the chassis and electrical parts.

SCHEMATIC DIAGRAM
CAPSTAN MOTOR SECTION

WIRING CONNECTION DIAGRAM

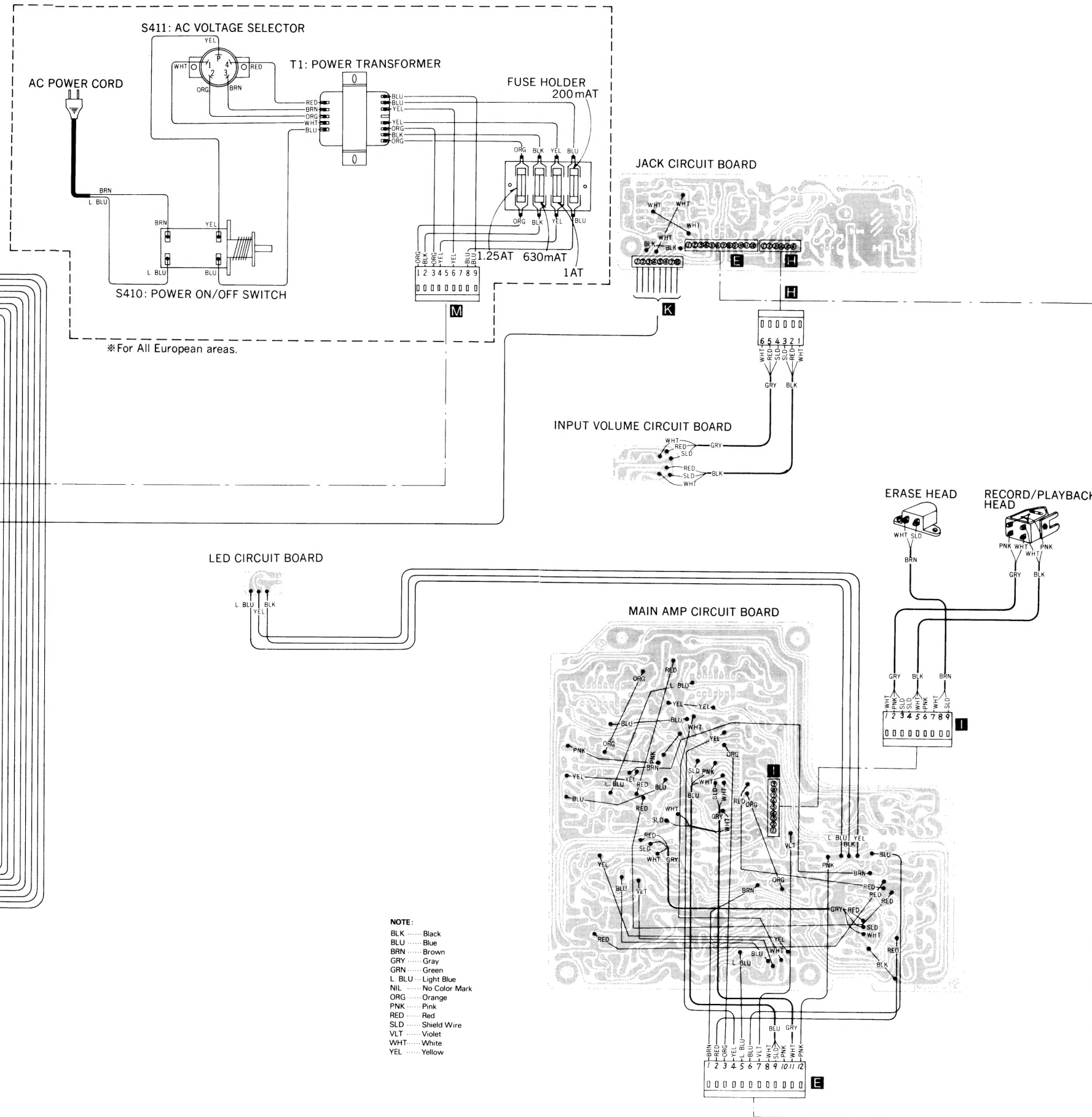


Circuit Board

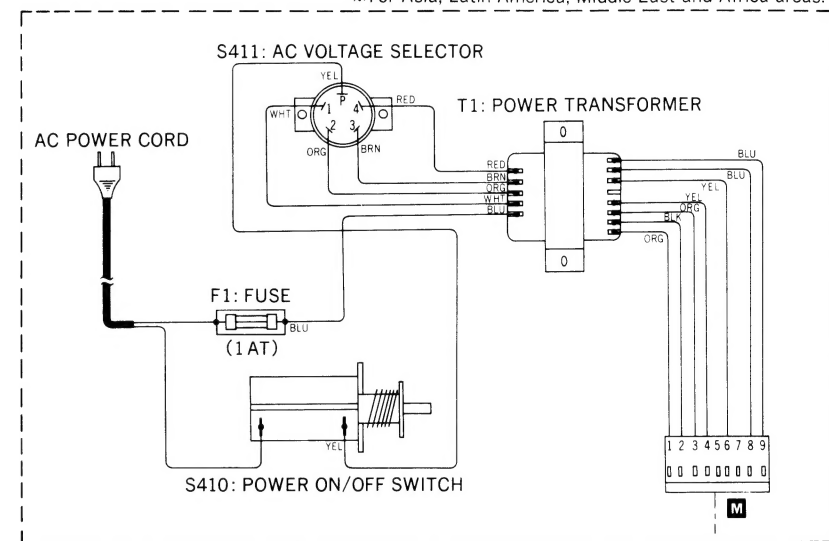
R

SWITCH

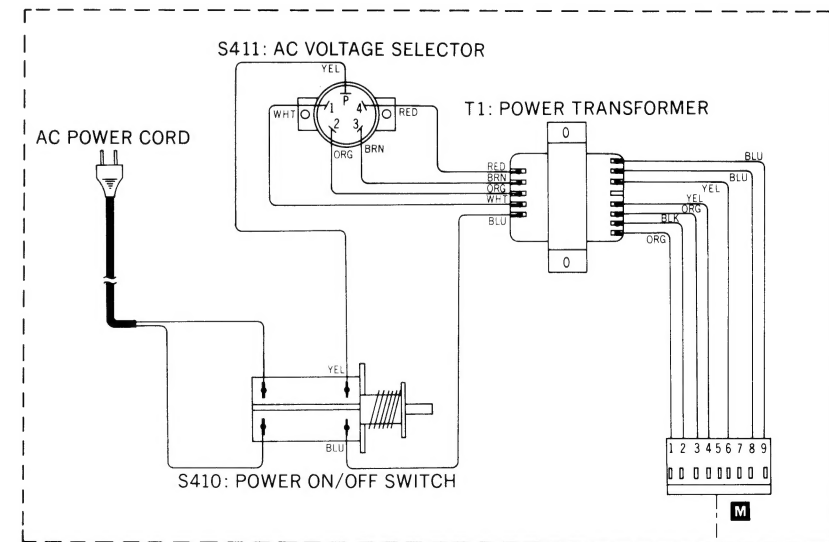
CTION



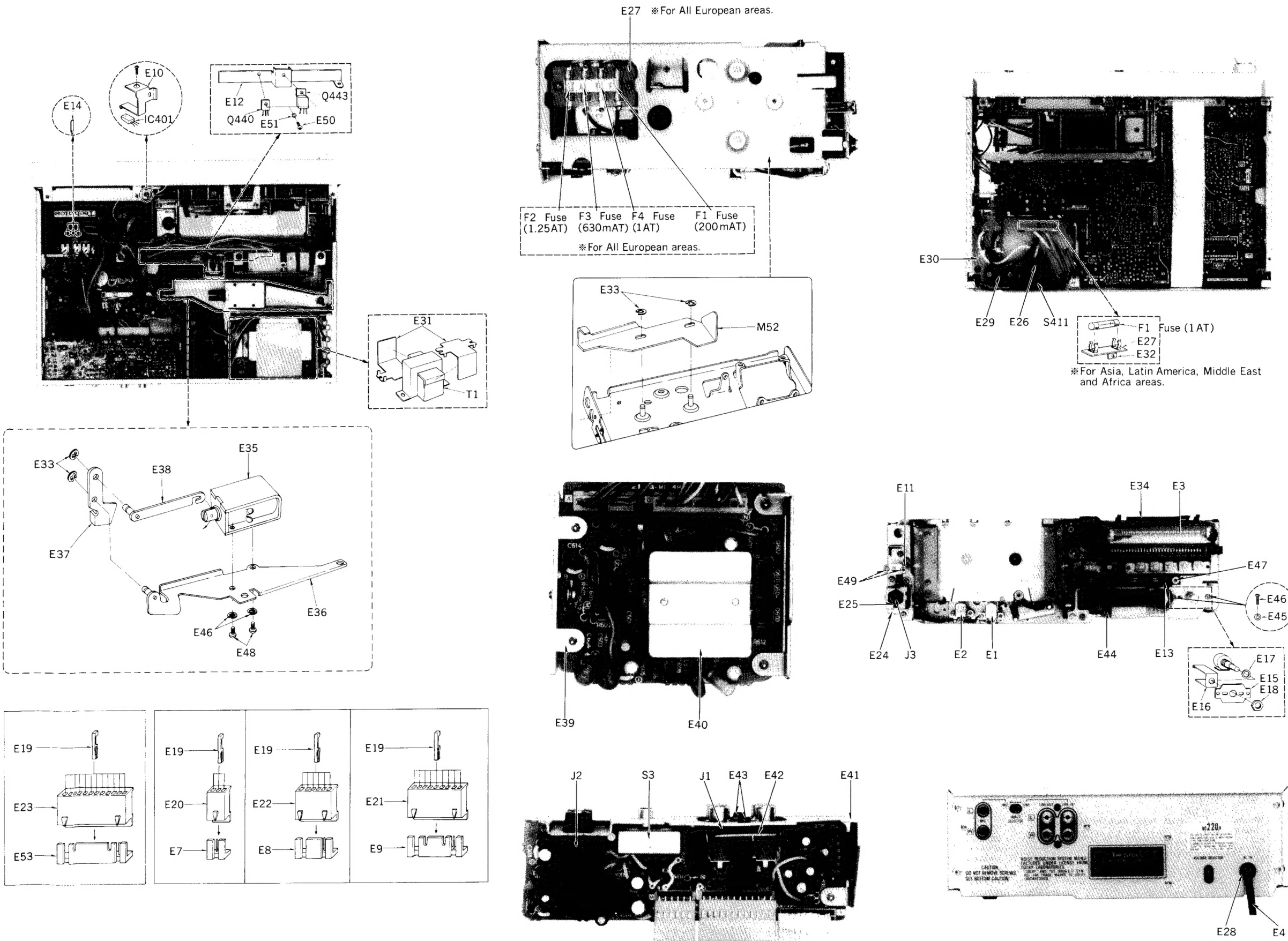
*For Asia, Latin America, Middle East and Africa areas.



*For Australia.



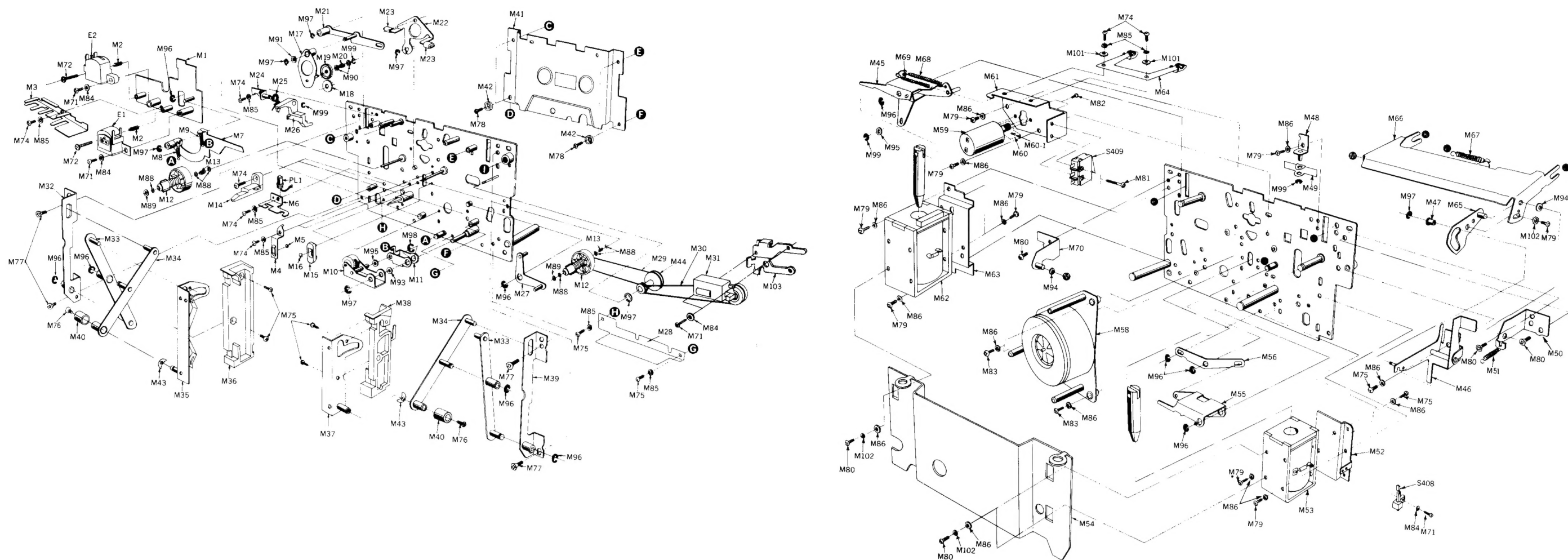
ELECTRICAL PARTS LOCATION



NOTE: Δ indicates that only parts specified by the manufacturer be used for safety.

| Ref. No. | Part No. | Part Name & Description |
|--|-------------------|--------------------------|
| ELECTRICAL PARTS | | |
| E1 | WY1416ZA | Record/Playback Head |
| E2 | QWY2133Z | Erase Head |
| E3 | QSL5004RF | Fluorescent Level Meter |
| E4 | Δ QFC1204M | AC Power Cord |
| *For All European areas except United Kingdom. | | |
| | Δ QFC1205M | " |
| *For United Kingdom. | | |
| | Δ QFC1200M | " |
| *For Asia, Latin America, Middle East and Africa areas. | | |
| | Δ QFC1208M | " |
| *For Australia. | | |
| E7 | QJP1921TN | 3 Pin Post |
| E8 | QJP1922TN | 6 Pin Post |
| E9 | QJP1923TN | 9 Pin Post |
| E10 | QMA3755 | Hall IC Angle |
| E11 | QMA3758 | Switch Angle (Timer rec) |
| E12 | QTH1148 | Heat Sink |
| E13 | QKJ0358 | LED Holder (A) |
| E14 | QJT1067 | Check Pin |
| E15 | QMF2070 | Volume Angle |
| E16 | QTW1166 | Insulator Plate |
| E17 | XWS9A | Washer |
| E18 | QNJ1039 | Nut |
| E19 | QJT1054 | Contact |
| E20 | QJS1921TN | 3 Pin Housing |
| E21 | QJS1923TN | 9 Pin Housing |
| E22 | QJS1922TN | 6 Pin Housing |
| E23 | QJS1924TN | 12 Pin Housing |
| E24 | QMA3753 | Headphones Angle |
| E25 | QNJ1051 | Nut |
| E26 | QTFM0026 | Switch Cover |
| E27 | Δ QTF1039A | Fuse Holder |
| *For All European areas. | | |
| | Δ QTF1033 | " |
| *For Asia, Latin America, Middle East, and Africa areas. | | |
| E28 | Δ QBJ1425A | Cord Bushing |
| *For All European areas and Australia. | | |
| | Δ QTD1129 | " |
| *For Asia, Latin America, Middle East and Africa areas. | | |
| E29 | Δ QTD1164 | Cord Clamper |
| *For All European areas and Australia. | | |
| E30 | QMA3754A | Transformer Angle |
| E31 | QTS1488 | Shield Plate |
| E32 | Δ QMA3122 | Fuse Angle |
| *For Asia, Latin America, Middle East and Africa areas. | | |
| E33 | XUC3FT | Stop Ring 3 ϕ |
| E34 | QKJ0357 | Meter Angle |
| E35 | QME0147BK | Plunger |
| E36 | QMF2068 | Plunger Angle |
| E37 | QML3501 | Plunger Lever (1) |
| E38 | QML3502 | Plunger Lever (2) |
| E39 | QTH1147 | Heat Sink (A) |
| E40 | QTH1136 | Heat Sink |
| E41 | QMA3761 | Jack Angle |
| E42 | QMF2069 | Jack Board Angle |
| E43 | XSN3+6BNS | Screw Φ 6 |
| | "Silver Type" | " |
| | XSN3+6BNS | " |
| | "Black Type" | " |
| E44 | XTV3+8BFS | Screw Φ 8 |
| E45 | XSN3+6S | Screw Φ 6 |
| E46 | XWA3B | Washer |
| E47 | QHQ1177S | Stop Screw |
| E48 | XSN3+5S | Screw Φ 5 |
| E49 | XQS16A3FZ | Screw Φ 6.3 |
| E50 | XSN3+8S | Screw Φ 8 |
| E51 | XWG3 | Washer |
| E52 | QMR1763 | Switch Rd |
| E53 | QJP1924TN | 12 Pin Post |

EXPLODED VIEWS



| Ref. No. | Part No. | Part Name & Description | Ref. No. | Part No. | Part Name & Description | Ref. No. | Part No. | Part Name & Description | Ref. No. | Part No. | Part Name & Description |
|------------------|----------|--------------------------------|----------|---------------|-------------------------|----------|-----------|-------------------------------|----------|----------|---------------------------|
| MECHANICAL PARTS | | | | | | | | | | | |
| M1 | QXK2029 | Head Base Plate Assembly | M31 | QXC0051 | Tape Counter Assembly | M51 | QBT1753 | Playback Lever Spring | M82 | XSN2+3 | Screw $\phi 2 \times 3$ |
| M2 | QBCA0008 | Head Spring | | "Silver Type" | | M52 | QMA3591A | Plunger Angle-L | M83 | XSN3+8S | Screw $\phi 3 \times 8$ |
| M3 | QTD1261 | Head Wires Clamper | | QXC0055 | "Black Type" | M53 | QME0147 | Plunger | M84 | XWA2B | Spring Washer 2 ϕ |
| M4 | QBP1733 | Steel Ball Holder-A | M32 | QXA0703 | Angle-L Assembly | M54 | QXA0786 | Mechanism Reinforcement Angle | M85 | XWA26B | Spring Washer 2.6 ϕ |
| M5 | QDK1012 | Steel Ball 2.5 ϕ | M33 | QXL1191 | Link Lever-A Assembly | M55 | QXL1171 | Plunger Lever-L Assembly | M86 | XWA3B | Spring Washer 3 ϕ |
| M6 | QMA3321 | Lamp Angle | M34 | QXL1190 | Link Lever-B Assembly | M56 | QML3276 | Plunger Lever | M87 | QBW2016 | Poly Washer |
| M7 | QXL1168 | Pressure Roller Lever Assembly | M35 | QXA0706 | Holder Angle-L Assembly | M58 | QXK2172 | Capstan Motor Assembly | M88 | QBW2012 | " |
| M8 | QBT1490 | Eject Lever Spring | M36 | QMH2027 | Cassette Holder-L | M59 | MKC222AE5 | Reel Motor | M89 | QBW2008 | " |
| M9 | QBT1441 | Pressure Roller Spring | M37 | QXA0705 | Holder Angle-R Assembly | M60 | QXP0574 | Motor Pulley Assembly | M90 | QBW2015 | " |
| M10 | QXL1166 | Pressure Roller Assembly | M38 | QMH2028 | Cassette Holder-R | M60-1 | XXE26D3FZ | Set Screw | M91 | QBW2017 | " |
| M11 | QML3267 | Pressure Roller Lever-1 | M39 | QXA0704 | Angle-R Assembly | M61 | QMA3313 | Motor Angle | M92 | QBW2018 | " |
| M12 | QXD0087 | Reel Table | M40 | QKJ0245 | Spacer-A | M62 | QXE0249 | Plunger | M93 | QBW2016 | " |
| M13 | QBC1272 | Back Tension Spring | M41 | QXH0286 | Mechanism Cover | M63 | QMA3312 | Plunger Angle-R | M94 | QBW2019 | " |
| M14 | QMG0054 | Cassette Guide | | "Silver Type" | | M64 | QXH0276 | Cassette Holding Cushion | M95 | QBK7123 | Fiber Washer |
| M15 | QMH2009 | Steel Ball Holder-B | | "Black Type" | | M65 | QXL1173 | Lock Lever Assembly | M96 | XUC3FT | Stop Ring 3 ϕ |
| M16 | QDK1006 | Steel Ball 3 ϕ | | QXH0320 | " | M66 | QML3282 | Connector Lever | M97 | XUC25FT | Stop Ring 2.5 ϕ |
| M17 | QXL1189 | Idler Lever Assembly | | "Black Type" | | M67 | QBT1553 | Holder Spring-R | M98 | XUC5FT | Stop Ring 5 ϕ |
| M18 | QBF1260 | Idler Felt | | QXH0277 | " | M68 | QBT1405 | Lever Spring | M99 | XUC2FT | Stop Ring 2 ϕ |
| M19 | QXI0101 | Idler Assembly | | "Silver Type" | | M69 | QBT1713 | Record Spring | M100 | XSN26+6 | Screw $\phi 2.6 \times 6$ |
| M20 | QBC1308 | Idler Spring | | "Silver Type" | | M70 | QXA0702 | Connector Angle-R Assembly | M101 | XWG26 | Flat Washer |
| M21 | QXL1164 | Brake Lever Assembly | | "Silver Type" | | M71 | XSN2+6 | Screw $\phi 2 \times 6$ | M102 | XWC3B | Lock Washer |
| M22 | QML3273 | Brake | M42 | QMZ1213 | Spacer-B | M72 | QH01211 | Head Adjustment Screw | M103 | QMA3750 | Counter Angle |
| M23 | QBG1132 | Stopper Rubber | M43 | QBP1135 | Spring Washer | M74 | XSN26+4 | Screw $\phi 2.6 \times 4$ | M104 | XSN2+4 | Screw $\phi 2 \times 4$ |
| M24 | QXA0714 | Detection Angle Assembly | M44 | QDP1811 | Connection Pulley | M75 | XSN26+4BV | Screw $\phi 2.6 \times 4$ | M105 | QHQ1182A | Step Screw |
| M25 | QBN1573 | Detection Lever Spring | M45 | QXL1165 | Lever-B Assembly | M76 | XSS2+4 | Screw $\phi 2 \times 4$ | | | |
| M26 | QML3285 | Detection Lever | M46 | QXL1311 | Eject Lever Assembly | M77 | XSS3+4S | Screw $\phi 3 \times 4$ | | | |
| M27 | QXL1172 | Lever-A Assembly | M47 | QDP1758 | Roller | M78 | QH01185 | Step Screw | | | |
| M28 | QTS1451 | Shield Plate | M48 | QXA0713 | Angle Assembly | M79 | XSN3+5S | Screw $\phi 3 \times 5$ | | | |
| M29 | QDB0167 | Counter Belt-A | M49 | QML3284 | Release Lever | M80 | XSS3+6S | Screw $\phi 3 \times 6$ | | | |
| M30 | QDB0259 | Counter Belt-B | M50 | QMA3314 | Connector Angle | M81 | QHQ1182 | Step Screw | | | |

| SPECIFICATIONS | |
|-----------------------------|-------------------------|
| Pressure of pressure roller | 400 \pm 30 gr |
| Wow and flutter: JIS | Less than 0.04 % (WRMS) |